# 1NC

## 1

#### The aff’s invocation of death impacts is necrophilia, a blind obsession with body counts that ends in extinction. Vote neg to reject death impacts—this is a gateway issue—if they win death impacts are good, the rest of the 1NC applies—we won’t cross-apply to prove links

Erich **Fromm 64**, PhD in sociology from Heidelberg in 1922, psychology prof at MSU in the 60’s, “Creators and Destroyers”, The Saturday Review, New York (04. January 1964), pp. 22-25

People are aware of the possibility of nuclear war; they are aware of the destruction such a war could bring with it--and yet they seemingly make no effort to avoid it. Most of us are puzzled by this behavior because we start out from the premise that people love life and fear death. Perhaps we should be less puzzled if we questioned this premise. Maybe there are many people who are indifferent to life and many others who do not love life but who do love death. There is an orientation which we may call love of life (biophilia); it is the normal orientation among healthy persons. But there is also to be found in others a deep attraction to death which, following Unamuno's classic speech made at the University of Salamanca (1938), I call necrophilia. It is the attitude which a Franco general, Millán Astray, expressed in the slogan "Long live death, thus provoking Unamuno’s protest against this "necrophilous and senseless cry." Who is a necrophilous person? He is one who is attracted to and fascinated by all that is not alive, to all that is dead; to corpses, to decay, to feces, to dirt. Necrophiles are those people who love to talk about sickness, burials, death. They come to life precisely when they can talk about death. A clear example of the pure necrophilous type was Hitler. He was fascinated by destruction, and the smell of death was sweet to him. While in the years of success it may have appeared that he wanted only to destroy those whom he considered his enemies, the days of the Götterdämmerung at the end showed that his deepest satisfaction lay in witnessing total and absolute destruction: that of the German people, of those around him, and of himself. The necrophilous dwell in the past, never in the future. Their feelings are essentially sentimental; that is, they nurse the memory of feelings which they had yesterday--or believe that they had. They are cold, distant, devotees of "law and order." Their values are precisely the reverse of the values we connect with normal life; not life, but death excites and satisfies them. If one wants to understand the influence of men like Hitler and Stalin, it lies precisely in their unlimited capacity and willingness to kill. For this they' were loved by the necrophiles. Of the rest, many were afraid of them and so preferred to admire, rather than to be aware of, their fear. Many others did not sense the necrophilous quality of these leaders and saw in them the builders, saviors, good fathers. If the necrophilous leaders had not pretended that they were builders and protectors, the number of people attracted to them would hardly have been sufficient to help them seize power, and the number of those repelled by them would probably soon have led to their downfall. While life is characterized by growth in a structured, functional manner, the necrophilous principle is all that which does not grow, that which is mechanical. The necrophilous person is driven by the desire to transform the organic into the inorganic, to approach life mechanically, as if all living persons were things. All living processes, feelings, and thoughts are transformed into things. Memory, rather than experience--having, rather than being--are what counts. The necrophilous person can relate to an object--a flower or a person--only if he possesses it; hence, a threat to his possession is a threat to himself; if he loses possession he loses contact with the world. That is why we find the paradoxical reaction that he would rather lose life than possession, even though, by losing life, he who possesses has ceased to exist. He loves control, and in the act of controlling he kills life. He is deeply afraid of life, because it is disorderly and uncontrollable by its very nature. The woman who wrongly claims to be the mother of the child in the story of Solomon's judgment is typical of this tendency; she would rather have a properly divided dead child than lose a living one. To the necrophilous person justice means correct division, and they are willing to kill or die for the sake of what they call, justice. "Law and order" for them are idols, and everything that threatens law and order is felt as a satanic attack against their supreme values. The necrophilous person is attracted to darkness and night. In mythology and poetry (as well as in dreams) he is attracted to caves, or to the depth of the ocean, or depicted as being blind. (The trolls in Ibsen's Peer Gynt are a good example.) All that is away from or directed against life attracts him. He wants to return to the darkness {23} of the womb, to the past of inorganic or subhuman existence. He is essentially oriented to the past, not to the future, which he hates and fears. Related to this is his craving for certainty. But life is never certain, never predictable, never controllable; in order to make life controllable, it must be transformed into death; death, indeed, is the only thing about life that is certain to him. The necrophilous person can often be recognized by his looks and his gestures. He is cold, his skin looks dead, and often he has an expression on his face as though he were smelling a bad odor. (This expression could be clearly seen in Hitler's face.) He is orderly and obsessive. This aspect of the necrophilous person has been demonstrated to the world in the figure of Eichmann. Eichmann was fascinated by order and death. His supreme values were obedience and the proper functioning of the organization. He transported Jews as he would have transported coal. That they were human beings was hardly within the field of his vision; hence, even the problem of his having hated or not hated his victims is irrelevant. He was the perfect bureaucrat who had transformed all life into the administration of things. But examples of the necrophilous character are by no means to be found only among the inquisitors, the Hitlers and the Eichmanns. There are any number of individuals who do not have the opportunity and the power to kill, vet whose necrophilia expresses itself in other and (superficially seen) more harmless ways. An example is the mother who will always be interested in her child's sickness, in his failures, in dark prognoses for the future; at the same time she will not be impressed by a favorable change nor respond to her child's joy, nor will she notice anything new that is growing within him. We might find that her dreams deal with sickness, death, corpses, blood. She does not harm the child in any obvious way, yet she may slowly strangle the child's joy of life, his faith--in growth, and eventually infect him with her own necrophilous orientation. My description may have given the impression that all the features mentioned here are necessarily found in the necrophilous person. It is true that such divergent features as the wish to kill, the worship of force, the attraction to death and dirt, sadism, the wish to transform the organic into the inorganic through "order" are all part of the same basic orientation. Yet so far as individuals are concerned, there are considerable differences with respect to the strength of these respective trends. Any one of the features mentioned here may be more pronounced in one person than in another. Furthermore, the degree to which a person is necrophilous in comparison with his biophilous aspects and the degree to which a person is aware of necrophilous tendencies and rationalizes them vary considerably from person to person. Yet the concept of the necrophilous type is by no means an abstraction or summary of various disparate behavior trends. Necrophilia constitutes a fundamental orientation; it is the one answer to life that is in complete opposition to life; it is the most morbid and the most dangerous among the orientations to life of which man is capable. It is true perversion; while living, not life but death is loved--not growth, but destruction. The necrophilous person, if he dares to be aware of what he feels, expresses the motto of his life when he says: "Long live death!" The opposite of the necrophilous orientation is the biophilous one; its essence is love of life in contrast to love of death. Like necrophilia, biophilia is not constituted by a single trait but represents a total orientation, an entire way of being. It is manifested in a person's bodily processes, in his emotions, in his thoughts, in his gestures; the biophilous orientation expresses itself in the whole man. The person who fully loves life is attracted by the process of life in all spheres. He prefers to construct, rather than to retain. He is capable of wondering, and he prefers to see something new to the security of finding the old confirmed. He loves the adventure of living more than he does certainty. His approach to life is functional rather than mechanical. He sees the whole rather than only the parts, structures rather than summations. He wants to mold and to influence by love, by reason, by his example--not by force, by cutting things apart, by the bureaucratic manner of administering people as if they were things. He enjoys life and all its manifestations, rather than mere excitement. Biophilic ethics has its own principle of good and evil. Good is all that serves life; evil is all that serves death. Good is reverence for life (this is the main thesis of Albert Schweitzer, one of the great representatives of the love of life--both in his writings and in his person), and all that enhances life. Evil is all that stifles life, narrows it down, {24} cuts it into pieces. Thus it is from the standpoint of life-ethics that the Bible mentions as the central sin of the Hebrews: "Because thou didst not serve thy Lord with joy and gladness of heart in the abundance of all things." The conscience of the biophilous person is not one of forcing oneself to refrain from evil and to do good. It is not the superego described by .Freud, a strict taskmaster employing sadism against oneself for the sake of virtue. The biophilous conscience is motivated by its attraction to life and joy; the moral effort consists in strengthening the life loving side in oneself. For this reasons the biophile does not dwell in remorse and guilt, which are, after all, only aspects of self-loathing and sadness. He turns quickly to life and attempts to do good. Spinoza's Ethics is a striking example of biophilic morality. "Pleasure," he says, "in itself is not bad but good; contrariwise, pain in itself is bad." And in the same spirit: "A free man thinks of death least of all things; and his wisdom is a meditation not of death but of life." Love of life underlies the various versions of humanistic philosophy. In various conceptual forms these philosophies are in the same vein as Spinoza's; they express the principle that the same man loves life; that man's aim in life is to be attracted by all that is alive and to separate himself from all that is dead and mechanical. The dichotomy of biophilia-necrophilia is the same as Freud's life-and-death instinct. I believe, as Freud did, that this is the most fundamental polarity that exists. However, there is one important difference. Freud assumes that the striving toward death and toward life are two biologically given tendencies inherent in all living substance that their respective strengths are relatively constant, and that there is only one alternative within the operation of the death instinct--namely, that it can be directed against the outside world or against oneself. In contrast to these assumptions I believe that necrophilia is not a normal biological tendency, but a pathological phenomenon--in fact, the most malignant pathology that exists in mail. What are we, the people of the United States today, with respect to necrophilia and biophilia? Undoubtedly our spiritual tradition is one of love of life. And not only this. Was there ever a culture with more love of "fun" and excitement, or with greater opportunities for the majority to enjoy fun and excitement? But even if this is so, fun and excitement is not the same as joy and love of life; perhaps underneath there is indifference to life, or attraction to death? To answer this question we must consider the nature of our bureaucratized, industrial, mass civilization. Our approach to life becomes increasingly mechanical. The aim of social efforts is to produce things, and. in the process of idolatry of things we transform ourselves into commodities. The question here is not whether they are treated nicely and are well fed (things, too, can be treated nicely); the question is whether people are things or living beings. People love mechanical gadgets more than living beings. The approach to man is intellectualabstract. One is interested in people as objects, in their common properties, in the statistical rules of mass behavior, not in living individuals. All this goes together with the increasing role of bureaucratic methods. In giant centers of production, giant cities, giant countries, men are administered as if they were things; men and their administrators are transformed into things, and they obey the law of things. In a bureaucratically organized and centralized industrialism, men's tastes are manipulated so that they consume maximally and in predictable and profitable directions. Their intelligence and character become standardized by the ever-increasing use of tests, which select the mediocre and unadventurous over the original and daring. Indeed, the bureaucratic-industrial civilization that has been victorious in Europe and North America has created a new type of man. He has been described as the "organization man" and as homo consumens. He is in addition the homo mechanicus. By this I mean a "gadget man," deeply attracted to all that is mechanical and inclined against all that is alive. It is, of course, true that man's biological and physiological equipment provides him with such strong sexual impulses that even the homo mechanicus still has sexual desires and looks for women. But there is no doubt that the gadget man's interest in women is diminishing. A New Yorker cartoon pointed to this very amusingly: a sales girl trying to sell a certain brand of perfume to a young female customer recommends it by remarking, "It smells like a new sports car." Indeed, any observer of men's behavior today will confirm that this cartoon is more than a clever joke. There are apparently a great number of men who are more interested in sports-cars, television and radio sets, space travel, and any number of gadgets than they are in women, love, nature, food; who are more stimulated by the manipulation of non-organic, mechanical things than by life. Their attitude toward a woman is like that toward a car: you push the button and watch it race. It is not even too farfetched to assume that homo mechanicus has more pride in and is more fascinated by, devices that can kill millions of people across a distance of several thousands of miles within minutes than he is frightened and depressed by the possibility of such mass destruction. Homo mechanicus still likes sex {25} and drink. But all these pleasures are sought for in the frame of reference of the mechanical and the unalive. He expects that there must be a button which, if pushed, brings happiness, love, pleasure. (Many go to a psychoanalyst under the illusion that he can teach them to find the button.) The homo mechanicus becomes more and more interested in the manipulation of machines, rather than in the participation in and response to life. Hence he becomes indifferent to life, fascinated by the mechanical, and eventually attracted by death and total destruction. This affinity between the love of destruction and the love of the mechanical may well have been expressed for the first time in Marinetti's Futurist Manifesto (1909). "A roaring motor-car, which looks as though running on a shrapnel is more beautiful than the Victory of Samothrace. … We wish to glorify war--the only health-giver of the world-militarism, patriotism, the destructive arm of the Anarchist, the beautiful Ideas that kill the contempt for woman." Briefly then, intellectualization, quantification, abstractification, bureaucratization, and reification--the very characteristics of modern industrial society--when applied to people rather than to things are not the principles of life but those of mechanics. People living in such a system must necessarily become indifferent to life, even attracted to death. They are not aware of this. They take the thrills of excitement for the joys of life and live under the illusion that they are very much alive when they only have many things to own and to use. The lack of protest against nuclear war and the discussion of our "atomologists" of the balance sheet of total or half-total destruction show how far we have already gone into the "valley of the shadow of death."1 To speak of the necrophilous quality of our industrial civilization does not imply that industrial production as such is necessarily contrary to the principles of life. The question is whether the principles of social organization and of life are subordinated to those of mechanization, or whether the principles of life are the dominant ones. Obviously, the industrialized world has not found thus far an answer, to the question posed here: How is it possible to create a humanist industrialism as against the bureaucratic mass industrialism that rules our lives today? The danger of nuclear war is so grave that man may arrive at a new barbarism before he has even a chance to find the road to a humanist industrialism. Yet not all hope is lost; hence we might ask ourselves whether the hypothesis developed here could in any way contribute to finding peaceful solutions. I believe it might be useful in several ways. First of all, an awareness of our pathological situation, while not yet a cure, is nevertheless a first step. If more people became aware of the difference between love of life and love of death, if they became aware that they themselves are already far gone in the direction of indifference or of necrophilia, this shock alone could produce new and healthy reactions. Furthermore, the sensitivity toward those who recommend death might be increased. Many might see through the pious rationalizations of the death lovers and change their admiration for them to disgust. Beyond this, our hypothesis would suggest one thing to those concerned with peace and survival: that every effort must be made to weaken the attraction of death and to strengthen the attraction of life. Why not declare that there is only one truly dangerous subversion, the subversion of life? Why do not those who represent the traditions of religion and humanism speak up and say that there is no deadlier sin than love for death and contempt for life? Why not encourage our best brains--scientists, artists, educators--to make suggestions on how to arouse and stimulate love for life as opposed to love for gadgets? I know love for gadgets brings profits to the corporations, while love for life requires fewer things and hence is less profitable. Maybe it is too late. Maybe the neutron bomb, which leaves entire cities intact, but without life, is to be the symbol of our civilization. But again, those of us who love life will not cease the struggle against necrophilia.

## 2

#### Wind’s a silver bullet that props up consumption

Zehner 12

Green illusions,

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If environmentalists suspected anything funny about the 20% Wind Energy by 2030 report, they didn't say anything about it in public. Instead, fifty environmental groups and research institutes, including the Natural Resources Defense Council, Sierra Club, and Lawrence Berkeley National Laboratory opted to double-down their windy bets by formally backing the study. When the nation's smartest and most dedicated research scientists, physicists, and environmentalists roll over to look up googly-eyed at any corporate energy production report, it's worthy of our attention. This love affair, however, is harmful to the environmentalists' cause for a number of reasons. First, fetishizing overly optimistic expectations for wind power takes attention away from another grave concern of environmental groups—reducing dirty coal use. Even if the United States could attain 20 percent wind energy by 2030, the achievement alone might not remove a single fossil-fuel plant from the grid. There is a common misconception that building additional alternative-energy capacity will displace fossil-fuel use; however, over past years, this hasn't been the case. Producing more energy simply increases supply, lowers cost, and stimulates additional energy consumption. Incidentally, some analysts argue that the mass deployment of wind turbines in Europe has not decreased the region's carbon footprint by even a single gram. They point to Spain, which prided itself on being a solar and wind power leader over the last two decades only to see its greenhouse gas emissions rise 40 percent over the same period. Second, the pomp and circumstance around wind diverts attention from competing solutions that possess promising social and ecological value. In a cash-strapped economy, we have to consider the trade-offs. As journalist Anselm Waldermann points out, "when it comes to climate change, investments in wind and solar energy are not very efficient. Preventing one ton of co2 emissions requires a relatively large amount of money. Other measures, especially building renovations, cost much less—and have the same effect."45

The third problem is the problem with all myths. When they don't come true, people grow cynical. Inflated projections today endanger the very legitimacy of the environmental movement tomorrow. Every energy-production technology carries its own yoke of drawbacks and limitations. However, the allure of a magical silver bullet can bring harms one step closer. Illusory diversions act to prop up and stabilize a system of extreme energy consumption and waste. Hype surrounding wind energy might even shield the fossil-fuel establishment—if clean and abundant energy is just over the horizon, then there is less motivation to clean up existing energy production or use energy more wisely. It doesn't help when the government maintains two ledgers of incompatible expectations. One set, based on fieldwork and historical trends, is used internally by people in the know. The second set, crafted from industry speculation and "unconstrained" by history, is disseminated via press releases, websites, and even by the president himself to an unwitting public. It may be time for mainstream environmental organizations to take note of this incongruence, put away the clean energy pom-poms, and get back to work speaking up for global ecosystems, which are hurt, not helped, by additional energy production. Because as we shall see, the United States doesn't have an energy crisis. It has a consumption crisis. Flashy diversions created through the disingenuous grandstanding of alternative-energy mechanisms act to obscure this simple reality.

#### The system’s nsustainable – debt, offshoring, financialization, eco – only shift from EMPIRE to MULTITUDES averts extinction

Shor 10

<http://www.stateofnature.org/locatingTheContemporary.html>

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Attributing the debilitation of the U.S. economy to a mortgage crisis or the collapse of the housing market misses the truly epochal crisis in the world economy and, indeed, in capitalism itself. As economist Michael Hudson contends, "the financial 'wealth creation' game is over. Economies emerged from World War II relatively free of debt, but the 60-year global run-up has run its course. Financial capitalism is in a state of collapse, and marginal palliatives cannot revive it." According to Hudson, among those palliatives is an ironic variant of the IMF strategies imposed on developing nations. "The new twist is a variant on the IMF 'stabilization' plans that lend money to central banks to support their currencies - for long enough to enable local oligarchs and foreign investors to move their savings and investments offshore at a good exchange rate." The continuity between these IMF plans and even the Obama administration's fealty to Wall Street can be seen in the person of Lawrence Summers, now the chief economic advisor to Obama. As further noted by Hudson, "the Obama bank bailout is arranged much like an IMF loan to support the exchange rate of foreign currency, but with the Treasury supporting financial asset prices for U.S. banks and other financial institutions ... Private-sector debt will be moved onto the U.S. Government balance sheet, where "taxpayers" will bear losses." [4] So, here we have another variation of the working poor getting sapped by the economic elite! In fact, one estimate of U.S. federal government support to the elite financial institutions is in the range of $10 trillion dollars, a heist of unimaginable proportions. [5] Given the massive indebtedness of the United States, its reliance of foreign support of that debt by countries like China, which has close to $2 trillion tied up in treasury bills and other investments, a long-term crisis of profitability, overproduction, and offshoring of essential manufacturing, it does not appear that the United States and, perhaps, even the capitalist system can avoid collapse. Certainly, there are Marxist economists and world-systems analysts who are convinced that the collapse is inevitable, albeit it may take several generations to complete. The question becomes whether a dying system can be resuscitated or, if something else can be put in its place. One of the most prominent world systems scholars, Immanuel Wallerstein, puts the long-term crisis of capitalism and the alternatives in the following perspective: Because the system we have known for 500 years is no longer able to guarantee long-term prospects of capital accumulation, we have entered a period of world chaos. Wild (and largely uncontrollable) swings in the economic, political, and military situations are leading to a systemic bifurcation, that is, to a world collective choice about the kind of new system the world will construct over the next fifty years. The new system will not be a capitalist system, but it could be one of two kinds: a different system that is equally or more hierarchical and inequalitarian, or one that is substantially democratic and equalitarian. [6] What Wallerstein overlooks is the possibility that a global crisis of capitalism with its continuous overexploitation and maldistribution of essential resources, such as water, could lead to a planetary catastrophe. [7] While Wallerstein and many of the Marxist critics of capitalism correctly identify the long-term structural crisis of capitalism and offer important insights into the need for more democratic and equalitarian systems, they often fail to realize other critical predicaments that have plagued human societies in the past and persist in even more life-threatening ways today. Among those predicaments are the power trips of civilization and environmental destructiveness. Such power trips can be seen through the sedimentation of power-over in the reign of patriarchal systems and an evolutionary selection for that power-over which contaminates society and social relationships. Certainly, many of those predicaments can also be attributed to a 5000 year history of the intersection of empire and civilization. Anthropologist Kajsa Ekholm Friedman analyzes that intersection and its impact in the Bronze Age as an "imperialist project..., dependent upon trade and ultimately upon war." [8] However, over the long rule of empire and especially within the last 500 years of the global aspirations of various empires, "no state or empire," observes historian Eric Hobsbawm, "has been large, rich, or powerful enough to maintain hegemony over the political world, let alone to establish political and military supremacy over the globe." [9] While war and trade still remain key components of the imperial project today and pretensions for global supremacy persist in the United States, what is just as threatening to the world as we know it is the overexploitation and abuse of environmental resources. Jared Diamond brilliantly reveals how habituated attitudes and values precluded the necessary recognition of environmental degradation which, in turn, led to the collapse of vastly different civilizations, societies, and cultures throughout recorded history. [10] He identifies twelve contemporary environmental challenges which pose grave dangers to the planet and its inhabitants. Among these are the destruction of natural habitats (rainforests, wetlands, etc.); species extinction; soil erosion; depletion of fossil fuels and underground water aquifers; toxic pollution; and climate change, especially attributable to the use of fossil fuels. [11] U.S. economic imperialism has played a direct role in environmental degradation, whether in McDonald's resource destruction of rainforests in Latin America, Coca-Cola's exploitation of underground water aquifers in India, or Union Carbide's toxic pollution in India. Beyond the links between empire and environmental destruction, unless we also clearly understand and combat the connections between empire and unending growth with its attendant "accumulation by dispossession", we may very well doom ourselves to extinction. According to James Gustave Speth, Dean of the Yale School of Forestry and Environmental Studies, the macro obsession with growth is also intimately related to our micro habituated ways of living. "Parallel to transcending our growth fetish," Speth argues, "we must move beyond our consumerism and hyperventilating lifestyles ... This reluctance to challenge consumption has been a big mistake, given the mounting environmental and social costs of American "affluenza," extravagance and wastefulness." [12] Of course, there are significant class and ethnic/racial differences in consumerism and lifestyle in the United States. However, even more vast differences and inequities obtain between the U.S. and the developing world. It is those inequities that lead Eduardo Galeano to conclude that "consumer society is a booby trap. Those at the controls feign ignorance, but anybody with eyes in his head can see that the great majority of people necessarily must consume not much, very little, or nothing at all in order to save the bit of nature we have left." [13] Finally, from Vandana Shiva's perspective, "unless worldviews and lifestyles are restructured ecologically, peace and justice will continue to be violated and, ultimately, the very survival of humanity will be threatened." [14] For Shiva and other global agents of resistance, the ecological and peace and justice imperatives require us to act in the here and now. Her vision of "Earth Democracy" with its emphasis on balancing authentic needs with a local ecology provides an essential guidepost to what we all can do to stop the ravaging of the environment and to salvage the planet. As she insists, "Earth Democracy is not just about the next protest or next World Social Forum; it is about what we do in between. It addresses the global in our everyday lives, our everyday realities, and creates change globally by making change locally." [15] The local, national, and transnational struggles and visions of change are further evidence that the imperial project is not only being contested but also being transformed on a daily basis. According to Mark Engler, "The powerful will abandon their strategies of control only when it grows too costly for them to do otherwise. It is the concerted efforts of people coming together in local communities and in movements spanning borders that will raise the costs. Empire becomes unsustainable ... when the people of the world resist." [16] Whether in the rural villages of Brazil or India, the jungles of Mexico or Ecuador, the city squares of Cochabama or Genoa, the streets of Seattle or Soweto, there has been, and continues to be, resistance around the globe to the imperial project. If the ruling elite and many of the citizens of the United States have not yet accepted the fact that the empire is dying and with it the concentric circles of economic, political, environmental, and civilizational crises, the global multitudes have been busy at work, digging its future grave and planting the seeds for another possible world. [17]

#### Reject the aff’s production ideology

#### Energy debates should focus on CRITIQUE of broad structures INSTEAD of producitivist fixes. Our ROLE OF THE BALLOT is best EVEN IF they win some truth claims – we must SHIFT THE FRAME

Zehner 12

Green illusions,

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Since this book represents a critique of alternative energy, it may seem an unlikely manual for alternative-energy proponents. But it is. Building alternative-energy infrastructure atop America's present economic, social, and cultural landscape is akin to building a sandcastle in a rising tide. A taller sand castle won't help. The first steps in this book sketch a partial blueprint for making alternative-energy technologies relevant into the future. Technological development alone will do little to bring about a durable alternative-energy future. Reimagining the social conditions of energy use will. Ultimately, we have to ask ourselves if environmentalists should be involved in the business of energy production (of any sort) while so many more important issues remain vastly underserved. Over the next several decades, it's quite likely that our power production cocktail will look very much like the mix of today, save for a few adjustments in market share. Wind and biofuel generation will become more prevalent and the stage is set for nuclear power as well, despite recent catastrophes. Nevertheless, these changes will occur over time—they will seem slow. Every power production mechanism has side effects and limitations of its own, and a global shift to new forms of power production simply means that humanity will have to deal with new side effects and limitations in the future. This simple observation seems to have gotten lost in the cheerleading for alternative-energy technologies. The mainstream environmental movement should throw down the green energy pom-poms and pull out the bifocals. It is entirely reasonable for environmentalists to criticize fossil-fuel industries for the harms they instigate. It is, however, entirely unreasonable for environmentalists to become spokespeople for the next round of ecological disaster machines such as solar cells, ethanol, and battery-powered vehicles. Environmentalists pack the largest punch when they instead act as power production watchdogs (regardless of the production method); past environmentalist pressures have cleaned the air and made previously polluted waterways swimmable. This watchdog role will be vital in the future as biofuels, nuclear plants, alternative fossil fuels, solar cells, and other energy technologies import new harms and risks. Beyond a watchdog role, environmentalists yield the greatest progress when addressing our social fundamentals, whether by supporting human rights, cleaning up elections, imagining new economic structures, strengthening communities, revitalizing democracy, or imagining more prosperous modes of consumption. Unsustainable energy use is a symptom of suboptimal social conditions. Energy use will come down when we improve these conditions: consumption patterns that lead to debt and depression; commercials aimed at children; lonely seniors stuck in their homes because they can no longer drive; kids left to fend for themselves when it comes to mobility or sexuality; corporate influence trumping citizen representation; measurements of the nation's health in dollars rather than well-being; a media concerned with advertising over insight, and so on. These may not seem like environmental issues, and they certainly don't seem like energy policy issues, but in reality they are the most important energy and environmental issues of our day. Addressing them won't require sacrifice or social engineering. They are congruent with the interests of many Americans, which will make them easier to initiate and fulfill. They are entirely realistic (as many are already enjoyed by other societies on the planet). They are, in a sense, boring. In fact, the only thing shocking about them is the degree to which they have been underappreciated in contemporary environmental thought, sidelined in the media, and ignored by politicians. Even though these first steps don't represent a grand solution, they are necessary preconditions if we intend to democratically design and implement more comprehensive solutions in the future. Ultimately, clean energy is less energy. Alternative-energy alchemy has so greatly consumed the public imagination over recent decades that the most vital and durable environmental essentials remain overlooked and underfunded. Today energy executives hiss silver-tongued fairy tales about clean-coal technologies, safe nuclear reactors, and renewable sources such as solar, wind, and biofuels to quench growing energy demands, fostering the illusion that we can maintain our expanding patterns of energy consumption without consequence. At the same time, they claim that these technologies can be made environmentally, socially, and politically sound while ignoring a history that has repeatedly shown otherwise. If we give in to accepting their conceptual frames, such as those pitting production versus production, or if we parrot their terms such as clean coal, bridge fuels, peacetime atom, smart growth, and clean energy, then we have already lost. We forfeit our right to critical democratic engagement and instead allow the powers that be to regurgitate their own terms of debate into our open upstretched mouths. Alternative-energy technologies don't clean the air. They don't clean the water. They don't protect wildlife. They don't support human rights. They don't improve neighborhoods. They don't strengthen democracy. They don't regulate themselves. They don't lower atmospheric carbon dioxide. They don't reduce consumption. They produce power. That power can lead to durable benefits, but only given the appropriate context. Ultimately, it's not a question of whether American society possesses the technological prowess to construct an alternative-energy nation. The real question is the reverse. Do we have a society capable of being powered by alternative energy? The answer today is clearly no. But we can change that. Future environmentalists will drop solar, wind, biofuels, nuclear, hydrogen, and hybrids to focus instead on women's rights, consumer culture, walkable neighborhoods, military spending, zoning, health care, wealth disparities, citizen governance, economic reform, and democratic institutions. As environmentalists and global citizens, it's not enough to say that we would benefit by shifting our focus. Our very relevance depends on it.

## 3

#### Deregulation and natural gas will raise the price cap – causes price spike

Steffy 12

(Loren --- business columnist @ The Chronicle, “Steffy: Electricity prices are going up – just ask Alice” May 21, 2012, FuelFix)

It’s a riddle the Mad Hatter would love: Natural gas prices fall to a decade low. Electricity prices in Texas are pegged to natural gas prices. So what happens to electricity prices? Why, they go up, of course. Next month, the Public Utility Commission is set to vote on a plan to raise the ceiling on wholesale electricity prices by 50 percent as early as August. Lower gas prices were finally supposed to justify the costly fiasco of deregulation. Now, that promise, like so many others related to deregulation, has evaporated. As I wrote earlier, the deregulated market has eroded generating capacity, which left the state vulnerable to rolling blackouts last year. Under the current system, generators can’t justify the cost of building new plants. Last year, the capacity shortage caused prices to soar, and they bumped up against the state’s wholesale price cap of $3,000 a megawatt-hour. So next month, the Public Utility Commission will consider a plan to raise that cap to $4,500. Generators sell the electricity they produce in the wholesale market, where retailers buy it before reselling it to consumers. The higher prices are supposed to ensure greater reliability over time by making it economical for generators to build more plants. In the short term, though, we just get the higher prices, not the additional generation, because new power plants can’t be built between now and August. “There is no chance – none whatsoever – that increasing the cap this summer will lead to new generation construction before 2013,” state Rep. Sylvester Turner, D-Houston, wrote in a recent letter to the PUC. PUC Commissioner Kenneth Anderson echoed those sentiments at a recent commission meeting. “I don’t know what signals it sends this summer, other than panic,” he said. The $4,500 cap is just the beginning. The PUC will consider another measure that would raise the cap even higher next year. Even before the cap is raised, though, traders tell me they’re seeing suspicious activity in the spot markets. Consider what happened on May 9, a mild day when temperatures peaked in the mid-80s. Wholesale prices started the day at $23 a megawatt-hour, and the forecast showed plenty of generating capacity. By late afternoon, that excess capacity dried up and the market appeared headed for a shortage. Prices jumped to $32, according to information compiled for me by a trader using data from the Electric Reliability Council of Texas, the grid operator for the deregulated market. Several electricity traders I spoke with told me they’ve seen similar patterns in recent months, and they worry the volatility will get worse. More volatile markets mean electricity retailers – the companies that sell you your power – must spend more to hedge against price swings. The more they hedge, the more it squeezes their razor-thin profit margins. That could force some companies to break their contracts with customers – and raise prices – or be forced out of business. In 2008, five retailers shut down because of price volatility. It’s not clear what’s causing the latest spikes, but Dan Jones, the state’s independent market monitor, agreed that the spot markets are behaving differently. “We know that this spring the weather was really mild and the load levels are pretty low,” he told me. “Gas prices are totally upside down from where they’ve been. The market dynamics are different.” Jones said he hasn’t ruled out manipulation, but he’s still investigating. Another possibility: With weak gas prices, more generators are running gas plants first and using coal only to meet peak demand. In the past, the opposite was true. Because coal plants take longer to come online, it may be creating capacity gaps, which cause prices to jump. So far, the impact of these daily price swings to consumers has been minimal, but that could change with the higher wholesale price cap and the summer’s increased electricity demands. Prices are going up no matter what. The deregulated market has become a sort of Mad Tea Party, and consumers are Alice. Bombarded by ridiculous riddles, we can only conclude that deregulation has become expensive nonsense.

#### Wind causes price supression – lowers rates

Caperton 12

(Richard W. Caperton is the Director of Clean Energy Investment at the Center for American Progress, “Wind Power Helps to Lower Electricity Prices” October 10, 2012, Energy and Environment)

Studies show that wind energy lowers power prices in wholesale markets, so it’s perfectly rational for Exelon to oppose wind power. But Exelon’s argument about the production tax credit hurting consumers is deeply misleading. Before digging into their argument, however, we need to review how wind power drives down prices. Much of Exelon’s power is sold in competitive wholesale power markets, which allow power generators (like Exelon) to sell power to local distribution utilities, which in turn sell that power to businesses and homeowners. Competitive markets all operate on a “single clearing price” basis, which means that all generators get paid the same amount for their power, no matter how much it costs to produce. This auction method ensures that every generator bids in the lowest price they’re willing to accept for their power. While the details are extremely complicated—the rules for the market that operates in the mid-Atlantic area are more than 2,000 pages long, for example—the basics are fairly straightforward. Every generator in the market tells the market operator how much power they’re willing to provide and at what cost. At the same time, every distribution utility tells the market operator how much power they need to buy. The market operator then stacks up the generators from lowest to highest bid. Then, starting at the lowest bid, the market operator adds up all of the bids until they have enough power to meet the distribution utilities’ demands. The last bid accepted becomes the “clearing price”—the price the distribution utilities pay for all of their power, and the price that every generator receives. To see how wind impacts power markets, consider the hypothetical examples displayed in Figure 1. Say a market has five different generators: a wind farm, a nuclear reactor, a coal-fired power plant, an efficient and modern natural gas power plant, and an older and less efficient natural gas plant. Each of these plants will offer to sell power at the price that covers their operating cost. On the other side of the market, distribution utilities need to buy 3,000 megawatts of power. This means the market operator will then stack up the bids from lowest to highest and then add up the bids until enough power can meet the 3,000 megawatts of demand. In the first example the market will clear at $50 per megawatt-hour of electricity. Now, consider what happens to this market if someone builds a new 500-megawatt wind farm, as shown in the second example. The need for power hasn’t changed at all, so the cheapest 3,000 megawatts will still determine the clearing price. In this case, the market now clears at $30 per megawatt-hour of electricity. This effect of wind power driving down wholesale prices is known as “price suppression” or the “merit order effect,” and its benefits are well known. A recent study of the Midwest Independent System Operator, for example, found that large amounts of wind could save consumers $200 per year. While the benefits for consumers are clear, existing generators lose some profits. In the original scenario, the nuclear reactor—let’s say it’s owned by Exelon—was making $40 per megawatt-hour more than their operating cost. (This isn’t technically “profit,” since some of this $40 goes toward covering fixed costs.) In the latter scenario, the reactor is only making $20 more than their operating costs. Of course, while Exelon makes $20 less, consumers save $20 on their power bill.

#### Low prices cause reshoring

Davidson 12

(Paul, “U.S. businesses worry they can't compete; They say taxes and regulations put them at a disadvantage globally” November 9, 2012, USA TODAY, MONEY; Pg. 1B)

The Council on Competitiveness, a group of CEOs, university presidents and labor leaders, says many of the issues should draw support from both parties. "We need to make the United States a leader in attracting investment, growing jobs and delivering prosperity," says Deborah Wince-Smith, who heads the competitiveness council. "And we're falling behind in all those things." Despite its slippage, the U.S. is still an economic power and the world's manufacturing leader. In recent years, falling U.S. factory wages and energy prices have narrowed its business-cost gap with other countries. Outsourcing jobs Over the long term, however, its status has declined as manufacturers have outsourced millions of jobs to countries that have lower wages, such as China; capitalism has spread to formerly closed economies, and technology has let companies to do business almost anywhere. The World Economic Forum recently said the USA's global ranking among the most competitive economies fell for the fourth year in a row in 2012, from fifth to seventh. It listed government bureaucracy and high taxes among the biggest deterrents for doing business here. And in a recent Harvard Business School survey of nearly 7,000 alumni, mostly senior business executives, 58% said they expect U.S. competitiveness to deteriorate in the next three years, though that's down from 71% last year. Competitiveness was defined as the ability to compete in the global economy while supporting high living standards for average Americans. There is some good news. The past few years, companies such as General Electric, NCR and Ford have moved at least some production back to the U.S., a trend known as reshoring. There are myriad reasons. Chinese wages have climbed an average 19% annually in recent years, while U.S. wages have risen by less than 4% annually, shrinking China's advantage, according to a study by Boston Consulting Group (BCG). Companies also cite rising overseas shipping costs, the sometimes-poor quality of foreign-made goods and the desire to more closely oversee production. Meanwhile, rising domestic energy production promises to pay huge dividends for the U.S. economy. A natural gas drilling boom has sharply lowered prices of the commodity and prompted companies that use natural gas as an energy source or feedstock to build plants in the U.S. or move production from overseas. Manufacturers such as Toyota, Honda and Siemens are taking advantage of low U.S. costs to begin exporting U.S.-made cars, gas turbines and other products to foreign countries. By the end of the decade, on-shoring and increased exports are expected to add about $125 billion a year to U.S. economic output and create 2.5 million to 5 million jobs, says BCG Senior Vice President Hal Sirkin. Yet while the offshoring calculus has shifted for many companies, it's not enough to reverse the long-term trend, says Harvard business professor Jan Rivkin. Respondents to the Harvard alumni survey were still three times as likely to be considering moving a business out of the U.S. as into the country. "We know the dominant flow remains outbound," he says. "Are we sinking more slowly than in the past? There's no question you hear lots of hopeful stories about reshoring."

#### Offshoring key to chinese econ

El-Shenawi 11

(Eman, “India and China are reaping the financial benefits produced by wealthy remitters” October 30, 2011, AlArabiya.net)

China, a holder of the world's largest foreign exchange reserves, at $3.2 trillion, has recently become a major player in the European debt crisis talks; the region's European Financial Stability Facility bailout fund has been trying to win help from Beijing. This is because China's GDP is set to grow to almost 9 percent in 2011. Compare that with the United States and the eurozone (growth forecasted at a joint 1.6 percent), and China's economic charm is clear. Indeed, the main reasons behind Chinese and Indian economic growth remain: their relatively cheap labor force and a thriving domestic market that has fed well into the global manufacturing supply chain. But their wealthy on- and offshore communities have cranked up their economic caliber and their global appeal for investors. India appears in the top five countries where the offshore affluent now have more than $1 million investable assets on average, according to the Global Affluent Investor study conducted by research company TNS. "India and China have already surpassed major European markets like Germany and France. It's interesting to see that the entrepreneurial spirit of people in these markets is already paying off in terms of personal wealth," Reg van Steen, director of business and finance, TNS, said, according to Reuters. Such emerging markets paint a cheery picture of wealth and how it can leverage economies in the wake of the 2008 global recession and amid the continuing fiscal crises.

#### Chinese economic decline causes Asian instability and nuclear war

Tom **Plate**, East Asia Expert, Adjunct. Prof. Communications @ UCLA, 6/28/**’3**

(Neo-cons a bigger risk to Bush than China, Strait Times, l/n)

But imagine a China disintegrating- on its own, without neo-conservative or Central Intelligence Agency prompting, much less outright military invasion because the economy (against all predictions) suddenly collapses. That would knock Asia into chaos. A massive flood of refugees would head for Indonesia and other places with poor border controls, which don’t’ want them and cant handle them; some in Japan might lick their lips at the prospect of World War II revisited and look to annex a slice of China. That would send Singapore and Malaysia- once occupied by Japan- into nervous breakdowns. Meanwhile, India might make a grab for Tibet, and Pakistan for Kashmir. Then you can say hello to World War III, Asia style. That’s why wise policy encourages Chinese stability, security and economic growth – the very direction the White House now seems to prefer.

## 4

#### Immigration will pass now—Obama’s capital determines success

Bill Keller, NYTimes, 2/3/13, Selling Amnesty, www.nytimes.com/2013/02/04/opinion/keller-selling-amnesty.html?pagewanted=print

Let’s assume that President Obama and the Democrats sincerely want an immigration bill, that this is not a trick to trap Republicans into an anti-immigrant vote that will alienate Hispanic voters and secure Democratic advantage for a generation. The Senate seems to be hospitable territory. Four Republicans — including the ascendant Marco Rubio — have joined four Democrats in embracing the politically difficult principles at the heart of the matter. Some advocates of immigration reform talk confidently of mustering 70 Senate votes, which would represent an astonishing reversal of fortunes for an issue that has long been mired in demagogy. The House, where many Republicans fear getting creamed by Tea Party challengers in a primary next year, is more problematic. The fear is that the House will balk or will break immigration into little pieces, pass the parts that crack down on undocumented workers and kill any effort to legalize the 11 million already here. That pessimism is natural; the House is the place where ideas go to die**. But it needn’t happen this time**. **If** President **Obama** and Congressional leaders play their cards right**, as they are doing** so far, immigration reform — **real immigration reform** — **can** clear Congress **this year**. **Selling the measure to the Republican House will require** close attention to **substance, marketing and** legislative tactics**.**

#### Plan is extremely politicized – causes partisan debate

Bill Opalka, Editor-and-chief, 12 [“Groups Want to Stop Politicizing Green Energy,” EnergyBiz, June 24, http://www.energybiz.com/article/12/06/groups-want-stop-politicizing-green-energy]

The U.S. Partnership for Renewable Energy Finance (US PREF) released a series of white papers at the American Council On Renewable Energy (ACORE)'s Renewable Energy Finance Forum - Wall Street in New York on June 19.¶ The groups say the effort is to rebalance the debate about renewable energy toward a fact-based business analysis instead of the politicized rhetoric that dominates discussions currently.¶ PREF members provided analyses that show how crucial renewable energy is as part of the nation's overall energy mix.¶ “There's never been a more important time for our country to adopt a genuine all-of-the-above energy strategy,” said Neil Auerbach, co-managing partner of Hudson Clean Energy Partners, a private equity firm that invests exclusively in clean energy. “We have the opportunity now to cultivate American business and innovation, support long-term job growth, fortify national security, decrease energy costs, and realize a host of environmental benefits.”¶ A common, bemoaned refrain at renewable energy gatherings is to hear reference to “Republican electrons” from coal and nuclear power and “Democratic electrons” from wind and solar.¶ US PREF cites international competition as a threat to continued U.S. innovation and global leadership.¶ The U.S. invested $48.1 billion in clean energy in 2011. “We are working with the renewable energy, power and technology industry leaders to pursue continued development of the U.S. renewable energy sector. This is an important opportunity to underscore U.S. leadership as we seek technologies to power future global growth and redefine our national energy strategy,” said Jeff Holzschuh, vice chairman at Morgan Stanley.¶ The white papers released by US PREF illustrate how large-scale deployment of renewable electricity sources has produced dramatic cost reductions, while fostering innovation that has increased efficiency across entire supply chains. State and federal policies are working in concert to drive this large-scale deployment and innovation. While federal incentives such as the production and investment tax credits bolster the supply of renewable energy, support for renewable energy demand has been augmented by state renewable portfolio standards (RPS). RPS “demand pull" is now reaching a plateau, however, of 3.25 GW per year of new renewable generating capacity through 2030.¶ To publicize the renewables message, ACORE on June 20 launched EnergyFactCheck.org and @EnergyFactCheck, two new resources designed to address the imbalance in the American debate.¶ “Clean and renewable energy is popular, productive, growing and essential to America’s economy, energy independence and national security.” said ACORE President and CEO Vice Admiral Dennis McGinn. “Unfortunately, misperceptions of clean and renewable energy abound, and opponents of renewables are pushing the occasional bad news as if it’s the only news. They are dominating the conversation through misrepresentation, exaggeration, distraction and millions of dollars in lobbying and advertising.”

#### That kills Obama’s immigration push

Amy Harder, National Journal, 2/6/13, In Washington, Energy and Climate Issues Get Shoved in the Closet, www.nationaljournal.com/columns/power-play/in-washington-energy-and-climate-issues-get-shoved-in-the-closet-20130206

At a news conference where TV cameras in the back were nearly stacked on top of each other, an influential bipartisan group of five senators introduced legislation late last month to overhaul the nation’s immigration system. The room was so crowded that no open seats or standing room could be found. A week later, one senator, Republican Lisa Murkowski of Alaska, was standing at the podium in the same room to unveil her energy-policy blueprint. There were several open seats and just a few cameras. At least one reporter was there to ask the senator about her position on President Obama’s choice for Defense secretary, former Republican Sen. Chuck Hagel. “I’m doing energy right now,” Murkowski responded. “I’m focused on that.” Almost everyone else on Capitol Hill is focused on something else. Aside from the broad fiscal issues, **Congress and the president are** galvanizing around immigration reform. Four years ago, the White House prioritized health care reform above comprehensive climate-change legislation. The former will go down in history as one of Obama’s most significant accomplishments. The latter is in the perpetual position of second fiddle. “**To everything**,” **Murkowski interjected** fervently **when asked** by National Journal Daily **whether energy** and climate policy **was second to other policies** in Washington’s pecking order. Murkowski, ranking member of the Senate's Energy and Natural Resources Committee, said she hoped the Super Bowl blackout would help the public understand the importance of energy policy. “This issue of **immigration**: Why are we all **focused on that**? Well, it’s because the Republicans lost the election because in part we did not have the Hispanic community behind us,” Murkowski said this week. “What is it that brings about that motivation? Maybe it could be something like a gap in the Super Bowl causes the focus on energy that we need to have. I can only hope.” It will take more than hope. Elections have consequences, but so far the only kind of electoral consequence climate and energy policy has instigated is one that helped some lawmakers who supported cap-and-trade legislation to lose their seats in the 2010 midterm elections. For the pendulum to swing the other way—for lawmakers to lose their seats over not acting on climate and energy policy—seems almost unfathomable right now. Billions of dollars are invested in the fossil-fuel power plants, refineries, and pipelines that the country depends on today. The companies that own this infrastructure have a business interest in keeping things the way they are. Immigration reform doesn’t face such formidable interests invested in the status quo. “They [businesses] have employees—real, visible people—who they value and who they want to make legal as soon as possible,” said Chris Miller, who until earlier this year was the top energy and environment adviser to Senate Majority Leader Harry Reid, D-Nev. On energy and climate-change policy, Miller added, “You’re probably never going to have anything like the fence in the Southwest or the border-control issue that **push**es action and debate **on immigration**, because climate-change impacts will likely continue to be more abstract in the public's mind until those impacts are so crystal-clear it’s too late for us to do anything.” Another, tactical reason helps build momentum on immigration and not on other issues. **Obama can capitalize on immigration** as it becomes more of a wedge issue within the GOP. On energy and climate policy, Obama faces a unified Republican Party. “The president has cracked the code on how to push his agenda items through. He learned from his victories on the payroll tax and the fiscal cliff that the key is to stake out the political high ground on issues that poll in his favor while exploiting the divisions within the GOP,” said a former Republican leadership aide who would speak only on the condition of anonymity. “With this in mind, the next logical place for him to go is immigration. Unlike issues like energy or tax reform where the GOP is united, he can claim a big win on immigration reform while striking a political blow to Republicans.”

#### Reform key to remittances

Oppenheimer, writer for the Miami Herald, 1/19/2013

(Andres, “Andres Oppenheimer: Obama may help Latin America - without trying,” http://www.miamiherald.com/2013/01/19/3189668/obama-may-help-latin-america-without.html#storylink=cpy)

Let’s start with the obvious: Obama doesn’t have a history of special interest in Latin America.

When I interviewed him for the first time in 2007, he had never set foot in the region. And during his first term, unlike most of his predecessors, he didn’t come up with any grand plan for Latin America — granted, he had to focus on resurrecting the U.S. economy — and instead stated that his top foreign policy priority is Asia’s Pacific rim.

Still, he may end up being great for Latin America, for reasons that have very little to do with Latin America.

First, there are better-than-even chances that — emboldened by his 71-27 victory margin among Latino voters in the 2012 elections — Obama will be able to pass an immigration reform plan that could legalize many of the estimated 11 million undocumented residents in the United States.

That would be a godsend to the economies of Mexico, Central America, the Caribbean, Colombia and Ecuador. **Most experts agree that once undocumented workers get legal status**, **they get better jobs and can send more money to their relatives back home**.

#### Remittances key to global microcredit diffusion

Giuliano, Asst Professor Economics – UCLA, fellow – NBER and IZA, ‘6

(Paola, “Remittances, Financial Development, and Growth,” Institute for the Study of Labor, IZA Discussion Paper No. 2160)

[footnote 3 included]

The relationship between remittances, financial development and growth is a-priori ambiguous. On one hand, well-functioning financial markets, by lowering costs of conducting transactions, may help direct remittances to projects that yield the highest return and therefore enhance growth rates. On the other hand, remittances might become a substitute for inefficient or nonexistent credit markets by helping local entrepreneurs bypass lack of collateral or high lending costs and start productive activities.3

[footnote 3 begins]

Entrepreneurs in developing countries confront much less efficient credit markets, and available evidence indicates that access to credit is among their biggest concerns (Paulson and Towsend, 2000). Several recent papers also suggest that credit constraints play an especially critical role in determining growth prospects in economies characterized by a high level of income inequality (Banerjee and Newman, 1993; Aghion and Bolton, 1997; Aghion, Caroli and Garcia Penalosa, 1999)

[footnote 3 ends]

The empirical analysis finds strong evidence that the second channel works: remittances boost growth in countries with less developed financial systems by providing an alternative way to finance investment and helping overcome liquidity constraint. In contrast, while more developed financial systems seems to attract more remittances (the volumes of remittance inflows increase with lower transaction costs and fewer restrictions on payments), they do not seem to magnify their growth impact.

Although this mechanism has not been studied in a macro context, there is some evidence at the micro-level. Dustmann and Kirchamp (2001) find that the savings of returning migrants may be an important source of startup capital for microenterprises. Similarly, in a study of 30 communities in West-Central Mexico, Massey and Parrado (1998) conclude that earnings from work in the United States provided an important source of startup capital in 21% of the new business formations. Woodruff and Zenteno (2001) also find that remittances are responsible for almost 20% of the capital invested in microenterprises throughout urban Mexico.

#### Key to climate adaptation

Carraro, OECD Environment Directorate, ‘10

(Maëlis, “Assessing the role of microfinance in fostering adaptation to climate change”, *OECD Environmental Working Paper No. 15*)

Core elements of microfinance, a priori, make it attractive for facilitating adaptation by the poor

Microfinance provides access to basic financial services to the poor. Through small loans with compulsory, frequent repayments to groups or individuals, microfinance helps the poor build up their assets, establish or develop a business, and protect against risks. Microfinance institutions (MFIs) are now spread all over the world (including in developed countries), and count over 100 million of the world’s poor among their clients. Almost 90% of the clients of MFIs are women. The scope of microfinance services, meanwhile, not only includes the provision of credit for income generation, but also savings, insurance, money transfer, and educational and health loans. Many MFI’s also provide “credit plus” complementary services such as skills education and training, health and nutrition workshops, and advice on agricultural practices.

These elements of microfinance make it an attractive vehicle for facilitating adaptation. MFI’s already have pre-existing networks of access to the poor – especially women – who are also particularly vulnerable to climate change. Meanwhile, the nature of microfinance lending, consisting of high volume, limited value loans, is also consistent with the fundamental nature of a majority of adaptation actions that will ultimately consist of thousands of decentralised actions by individuals, households and communities, as they continuously seek to internalise climate risks in their activities.

Despite its theoretical potential, very little is actually known about how microfinance interacts with adaptation in practice

Through the provision of credit and other financial services microfinance helps the poor develop alternate livelihood opportunities, build assets and spread risks. These actions would also – in most cases -automatically reduce vulnerability to climate risk even if there is no explicit consideration of such risks. From this perspective climate change might simply be one more reason to scale up microfinance. However, what is perhaps more critical from an adaptation perspective are more specific issues like how microfinance could be tapped for more targeted climate risk reduction and adaptation, for building adaptive capacity for climate change, and for reducing incentives for *mal*-adaptation. Very little is currently known about these latter, more specific, linkages which can only be examined through detailed analysis of actual microfinance portfolios in regions that are also particularly vulnerable to the impacts of climate change. The analysis of Bangladesh and Nepal in this report has been undertaken within this context. Not only are the two countries particularly vulnerable to the impacts of climate change, but they also have a vibrant microfinance industry to make such an examination possible.

Empirical analysis of existing portfolios in Bangladesh and Nepal reveals that close overlaps already exist between ongoing microfinanced activities and key climate change vulnerabilities

Analyses of existing microfinance portfolios of the 22 leading MFIs each in Bangladesh and Nepal reveal that many existing projects are already directed at sectors and activities that would also be vulnerable to climate change. This overlap is particularly strong for Bangladesh where agriculture, disaster relief and preparedness, and water and sanitation – which are all particularly affected by climate change – constitute almost 70% of the existing microfinance portfolio. For Nepal, meanwhile, the degree of overlap between the orientation of existing microfinance programs and climate change vulnerabilities is more limited. The dominant climate change risk in Nepal is in water resources and hydropower, whereas the related category of microfinance programs, water and sanitation, is a relatively small part of the overall portfolio. Collectively, the programs related to water, agriculture, health, and disasters (which are all vulnerable to climate change) constitute slightly less than 47% of the existing portfolio. However, even if programmatic priorities are closely intertwined with sectors and activities that might be vulnerable to climate change, not all microfinance activities within these areas might be relevant for adaptation. A more in-depth analysis of specific loan programs and projects is therefore required for this purpose.

Microfinance is already promoting some adaptation to reduce vulnerability to current climate risks in these countries and, in some isolated cases, also to climate change

A more detailed analysis of the credit programs and projects reveals that a number of existing microfinance lending programs and projects already offer adaptation “win-wins”. In fact, 43% of the portfolio that was examined in Bangladesh and 37% in Nepal could be classified as win-wins1, i.e. synergistic with adaptation. These include, for example, lending programs that support disaster relief and preparedness, crop diversification, improving access to irrigation, and provision of better sanitation facilities that reduce the risks of water borne diseases. They also include at least a few programs that go beyond coping or adapting to current climate risks. For example, lending programs to support construction of weather resistant housing or the adoption of drought and salt tolerant seeds in Bangladesh would also theoretically facilitate adaptation to longer term climate change. These latter examples, however, remain isolated at this stage in the case of Bangladesh, and absent almost entirely in Nepal.

#### Solves extinction from inevitable warming

Romero, 8

[Purple, reporter for ABS-CBN news, 05/17/2008, Climate change and human extinction--are you ready to be fossilized? <http://www.abs-cbnnews.com/nation/05/16/08/climate-change-and-human-extinction-are-you-ready-be-fossilized>

Climate change killed the dinosaurs. Will it kill us as well? Will we let it destroy the human race? This was the grim, depressing message that hung in the background of the Climate Change Forum hosted on Friday by the Philippine National Red Cross at the Manila Hotel. "Not one dinosaur is alive today. Maybe someday it will be our fossils that another race will dig up in the future, " said Roger Bracke of the International Federation of Red Cross and Red Crescent Societies, underscoring his point that no less than extinction is faced by the human race, unless we are able to address global warming and climate change in this generation. Bracke, however, countered the pessimistic mood of the day by saying that the human race still has an opportunity to save itself. This more hopeful view was also presented by the four other speakers in the forum. Bracke pointed out that all peoples of the world must be involved in two types of response to the threat of climate change: mitigation and adaptation. "Prevention" is no longer possible, according to Bracke and the other experts at the forum, since climate change is already happening. Last chance The forum's speakers all noted the increasing number and intensity of devastating typhoons--most recently cyclone Nargis in Myanmar, which killed more than 100,000 people--as evidence that the world's climatic and weather conditions are turning deadly because of climate change. They also reminded the audience that deadly typhoons have also hit the Philippines recently, particularly Milenyo and Reming, which left hundreds of thousands of Filipino families homeless. World Wildlife Fund Climate and Energy Program head Naderev Saño said that "this generation the last chance for the human race" to do something and ensure that humanity stays alive in this planet. According to Saño, while most members of our generation will be dead by the time the worst effects of climate change are felt, our children will be the ones to suffer. How will Filipinos survive climate change? Well, first of all, they have to be made aware that climate change is a problem that threatens their lives. The easiest way to do this – as former Consultant for the Secretariats of the UN Convention on Climate Change Dr. Pak Sum Low told abs-cbnews.com/Newsbreak – is to particularize the disasters that it could cause. Talking in the language of destruction, Pak and other experts paint this portrait of a Philippines hit by climate change: increased typhoons in Visayas, drought in Mindanao, destroyed agricultural areas in Pampanga, and higher incidence rates of dengue and malaria. Sañom said that as polar ice caps melt due to global warming, sea levels will rise, endangering coastal and low-lying areas like Manila. He said Manila Bay would experience a sea level increase of 72 meters over 20 years. This means that from Pampanga to Nueva Ecija, farms and fishponds would be in danger of being would be inundated in saltwater. Sañom added that Albay, which has been marked as a vulnerable area to typhoons, would be the top province at risk. Sañom also pointed out that extreme weather conditions arising from climate change, including typhoons and severe droughts, would have social, economic and political consequences: Ruined farmlands and fishponds would hamper crop growth and reduce food sources, typhoons would displace people, cause diseases, and limit actions in education and employment. Thus, Saño said, while environmental protection should remain at the top of the agenda in fighting climate change, solutions to the phenomenon "must also be economic, social, moral and political." Mitigation Joyceline Goco, Climate Change Coordinator of the Environment Management Bureau of the Department of Environment and Natural Resources, focused her lecture on the programs Philippine government is implementing in order to mitigate the effects of climate change. Goco said that the Philippines is already a signatory to global agreements calling for a reduction in the "greenhouse gasses"--mostly carbon dioxide, chloroflourocarbons and methane--that are responsible for trapping heat inside the planet and raising global temperatures. Goco said the DENR, which is tasked to oversee and activate the Clean Development Mechanism, has registered projects which would reduce methane and carbon dioxide. These projects include landfill and electricity generation initiatives. She also said that the government is also looking at alternative fuel sources in order do reduce the country's dependence on the burning of fossil fuels--oil--which are known culprits behind global warming. Bracke however said that mitigation is not enough. "The ongoing debate about mitigation of climate change effects is highly technical. It involves making fundamental changes in the policies of governments, making costly changes in how industry operates. All of this takes time and, frankly, we're not even sure if such mitigation efforts will be successful. In the meantime, while the debate goes on, the effects of climate change are already happening to us." Adaptation A few nations and communities have already begun adapting their lifestyles to cope with the effects of climate change. In Bangladesh, farmers have switched to raising ducks instead of chickens because the latter easily succumb to weather disturbances and immediate effects, such as floods. In Norway, houses with elevated foundations have been constructed to decrease displacement due to typhoons. In the Philippines main body for fighting climate change, the Presidential Task Force on Climate Change, (PTFCC) headed by Department on Energy Sec. Angelo Reyes, has identified emission reduction measures and has looked into what fuel mix could be both environment and economic friendly. The Department of Health has started work with the World Health Organization in strengthening its surveillance mechanisms for health services. However, bringing information hatched from PTFCC’s studies down to and crafting an action plan for adaptation with the communities in the barangay level remains a challenge. Bracke said that the Red Cross is already at the forefront of efforts to prepare for disasters related to climate change. He pointed out that since the Red Cross was founded in 1919, it has already been helping people beset by natural disasters. "The problems resulting from climate change are not new to the Red Cross. The Red Cross has been facing those challenges for a long time. However, the frequency and magnitude of those problems are unprecedented. This is why the Red Cross can no longer face these problems alone," he said. Using a medieval analogy, Bracke said that the Red Cross can no longer be a "knight in shining armor rescuing a damsel in distress" whenever disaster strikes. He said that disaster preparedness in the face of climate change has to involve people at the grassroots level. "The role of the Red Cross in the era of climate change will be less as a direct actor and increase as a trainor and guide to other partners who will help us adapt to climate change and respond to disasters," said Bracke. PNRC chairman and Senator Richard Gordon gave a picture of how the PNRC plans to take climate change response to the grassroots level, through its project, dubbed "Red Cross 143". Gordon explained how Red Cross 143 will train forty-four volunteers from each community at a barangay level. These volunteers will have training in leading communities in disaster response. Red Cross 143 volunteers will rely on information technology like cellular phones to alert the PNRC about disasters in their localities, mobilize people for evacuation, and lead efforts to get health care, emergency supplies, rescue efforts, etc.

## 5

#### The 50 states should create a uniform permitting process for offshore wind production, include offshore wind energy production as a qualifying energy in existing Renewable Portfolio Standards, and provide a long term investment tax credit for offshore wind development in the United States.

The status quo is always an option – proving the CP worse does not justify the plan. Logical decision-making is the most portable skill.

And, presumption remains negative—the counterplan is less change and a tie goes to the runner.

#### State offshore wind push sends a signal that revitalizes the industry

Gordon, 12

(VP for Energy Policy at American Progress, April, Taking Action on Clean Energy and Climate Protection in 2012

http://www.americanprogress.org/wp-content/uploads/issues/2012/04/pdf/energy\_solutions.pdf)

Expedite permitting processes for offshore wind development in state waters Why it matters: Offshore wind is a commercially scalable source of renewable energy. Some of the best wind resources in the world exist in close proximity to some of the most densely populated regions in America, such as the northeast and Mid-Atlantic. In Maine, Rhode Island, New Jersey, and Maryland, legislatures and governors are eager to tap into this resource for its potential clean energy contribution and the opportunity to establish a beachhead in their state for an industry with the potential to create hundreds of thousands of jobs, according to “Untapped Wealth: Offshore Wind Can Deliver Cleaner, More Affordable Energy and More Jobs Than Offshore Oil,” a 2010 study by the ocean protection nonprofit organization Oceana. States only control ocean space out to three miles from their shoreline, which limits the potential size of wind farms in state waters. Yet **the immense value of these installations as pilot projects** is compounded by the relative ease of permitting—**taking the federal government out of the process eliminates numerous hurdles**. A concerted push from a state government to expedite its permitting process will allow that state to **stake an early claim to “first in the nation” status for a demonstration project and provide a launching pad for a renewable energy industry** with tremendous economic promise.

#### Coordinated state level support solves alone

Mausolf, 12

(JD-Detroit Mercy School of Law, Clearing the Regulatory Hurdles and Promoting Offshore Wind Development in Michigan, Winter, 89 U. Det. Mercy L. Rev. 223)

While there is certainly opposition to the normative position that building offshore wind turbines is beneficial, this Note takes the position that offshore wind development should be encouraged. n22 Part I explains [\*227] why Michigan should support wind development in the Great Lakes. Part II explains why offshore wind farms are currently not a realistic possibility in the State of Michigan: first, Michigan has no siting process for leasing lands to wind farm developers; second, there is confusion over the federal regulatory process. Part II also explores how other states have been more successful in their development of a regulatory process. Further, Part III discusses possible solutions to Michigan's regulatory problems. Specifically, Michigan should adopt legislative and regulatory policies that signal to developers that the State is committed to offshore wind development. To do this, the State should pass legislation that governs offshore wind and tailor its Renewable Portfolio Standard ("RPS") so that it requires at least some of the energy used by companies to come from offshore wind.

## 6

#### The United States federal government should fund port upgrades as per the recommendations of their Keire evidence, including port deepening.

## 2nd adv

#### Competitiveness not key to heg

Brooks and Wohlforth, 8

[Stephen G. Brooks is Assistant Professor and William C. Wohlforth is Professor in the Department of Government at Dartmouth College, “World out of Balance, International Relations and the Challenge of American Primacy,” p. 32-35]

American primacy is also rooted in the county's position as the world's leading technological power. The United States remains dominant globally in overall R&D investments, high-technology production, commercial innovation, and higher education (table 2.3). Despite the weight of this evidence, elite perceptions of U.S. power had shifted toward pessimism by the middle of the first decade of this century. As we noted in chapter 1, this was partly the result of an Iraq-induced doubt about the utility of material predominance, a doubt redolent of the post-Vietnam mood. In retrospect, many assessments of U.S. economic and technological prowess from the 1990s were overly optimistic; by the next decade important potential vulnerabilities were evident. In particular, chronically imbalanced domestic finances and accelerating public debt convinced some analysts that the United States once again confronted a competitiveness crisis.23 If concerns continue to mount, this will count as the fourth such crisis since 1945; the first three occurred during the 1950s (Sputnik), the 1970s (Vietnam and stagflation), and the 1980s (the Soviet threat and Japan's challenge). None of these crises, however, shifted the international system's structure: multipolarity did not return in the 1960s, 1970s, or early 1990s, and each scare over competitiveness ended with the American position of primacy retained or strengthened.24

Our review of the evidence of U.S. predominance is not meant to suggest that the United States lacks vulnerabilities or causes for concern. In fact, it confronts a number of significant vulnerabilities; of course, this is also true of the other major powers.25 The point is that adverse trends for the United States will not cause a polarity shift in the near future. If we take a long view of U.S. competitiveness and the prospects for relative declines in economic and technological dominance, one takeaway stands out: relative power shifts slowly. The United States has accounted for a quarter to a third of global output for over a century. No other economy will match its combination of wealth, size, technological capacity, and productivity in the foreseeable future (tables 2.2 and 2.3).

The depth, scale, and projected longevity of the U.S. lead in each critical dimension of power are noteworthy. But what truly distinguishes the current distribution of capabilities is American dominance in all of them simultaneously. The chief lesson of Kennedy's 500-year survey of leading powers is that nothing remotely similar ever occurred in the historical experience that informs modern international relations theory. The implication is both simple and underappreciated: the counterbalancing constraint is inoperative and will remain so until the distribution of capabilities changes fundamentally. The next section explains why.

#### Economic model is inevitable

Zakaria, PhD Poli Sci @ Harvard, Editor of Newsweek, 12/12/’9

(Fareed, “The Secrets of Stability,” *Newsweek*, <http://www.newsweek.com/id/226425>)

Beyond all this, though, I believe there's a fundamental reason why we have not faced global collapse in the last year. It is the same reason that we weathered the stock-market crash of 1987, the recession of 1992, the Asian crisis of 1997, the Russian default of 1998, and the tech-bubble collapse of 2000. The current global economic system is inherently more resilient than we think. The world today is characterized by three major forces for stability, each reinforcing the other and each historical in nature.

The first is the spread of great-power peace. Since the end of the Cold War, the world's major powers have not competed with each other in geomilitary terms. There have been some political tensions, but measured by historical standards the globe today is stunningly free of friction between the mightiest nations. This lack of conflict is extremely rare in history. You would have to go back at least 175 years, if not 400, to find any prolonged period like the one we are living in. The number of people who have died as a result of wars, civil conflicts, and terrorism over the last 30 years has declined sharply (despite what you might think on the basis of overhyped fears about terrorism). And no wonder—three decades ago, the Soviet Union was still funding militias, governments, and guerrillas in dozens of countries around the world. And the United States was backing the other side in every one of those places. That clash of superpower proxies caused enormous bloodshed and instability: recall that 3 million people died in Indochina alone during the 1970s. Nothing like that is happening today.

Peace is like oxygen, Harvard's Joseph Nye has written. When you don't have it, it's all you can think about, but when you do, you don't appreciate your good fortune. Peace allows for the possibility of a stable economic life and trade. The peace that flowed from the end of the Cold War had a much larger effect because it was accompanied by the discrediting of socialism. The world was left with a sole superpower but also a single workable economic model—capitalism—albeit with many variants from Sweden to Hong Kong.

This consensus enabled the expansion of the global economy; in fact, it created for the first time a single world economy in which almost all countries across the globe were participants. That means everyone is invested in the same system. Today, while the nations of Eastern Europe might face an economic crisis, no one is suggesting that they abandon free-market capitalism and return to communism. In fact, around the world you see the opposite: even in the midst of this downturn, there have been few successful electoral appeals for a turn to socialism or a rejection of the current framework of political economy. Center-right parties have instead prospered in recent elections throughout the West.

#### Data disproves hegemony impacts

Fettweis, 11

Christopher J. Fettweis, Department of Political Science, Tulane University, 9/26/11, Free Riding or Restraint? Examining European Grand Strategy, Comparative Strategy, 30:316–332, EBSCO

It is perhaps worth noting that there is no evidence to support a direct relationship between the relative level of U.S. activism and international stability. In fact, the limited data we do have suggest the opposite may be true. During the 1990s, the United States cut back on its defense spending fairly substantially. By 1998, the United States was spending $100 billion less on defense in real terms than it had in 1990.51 To internationalists, defense hawks and believers in hegemonic stability, this irresponsible “peace dividend” endangered both national and global security. “No serious analyst of American military capabilities,” argued Kristol and Kagan, “doubts that the defense budget has been cut much too far to meet America’s responsibilities to itself and to world peace.”52 On the other hand, if the pacific trends were not based upon U.S. hegemony but a strengthening norm against interstate war, one would not have expected an increase in global instability and violence.

The verdict from the past two decades is fairly plain: The world grew more peaceful while the United States cut its forces. No state seemed to believe that its security was endangered by a less-capable United States military, or at least none took any action that would suggest such a belief. No militaries were enhanced to address power vacuums, no security dilemmas drove insecurity or arms races, and no regional balancing occurred once the stabilizing presence of the U.S. military was diminished. The rest of the world acted as if the threat of international war was not a pressing concern, despite the reduction in U.S. capabilities. Most of all, the United States and its allies were no less safe. The incidence and magnitude of global conflict declined while the United States cut its military spending under President Clinton, and kept declining as the Bush Administration ramped the spending back up. No complex statistical analysis should be necessary to reach the conclusion that the two are unrelated.

Military spending figures by themselves are insufficient to disprove a connection between overall U.S. actions and international stability. Once again, one could presumably argue that spending is not the only or even the best indication of hegemony, and that it is instead U.S. foreign political and security commitments that maintain stability. Since neither was significantly altered during this period, instability should not have been expected. Alternately, advocates of hegemonic stability could believe that relative rather than absolute spending is decisive in bringing peace. Although the United States cut back on its spending during the 1990s, its relative advantage never wavered.

However, even if it is true that either U.S. commitments or relative spending account for global pacific trends, then at the very least stability can evidently be maintained at drastically lower levels of both. In other words, even if one can be allowed to argue in the alternative for a moment and suppose that there is in fact a level of engagement below which the United States cannot drop without increasing international disorder, a rational grand strategist would still recommend cutting back on engagement and spending until that level is determined. Grand strategic decisions are never final; continual adjustments can and must be made as time goes on. Basic logic suggests that the United States ought to spend the minimum amount of its blood and treasure while seeking the maximum return on its investment. And if the current era of stability is as stable as many believe it to be, no increase in conflict would ever occur irrespective of U.S. spending, which would save untold trillions for an increasingly debt-ridden nation.

It is also perhaps worth noting that if opposite trends had unfolded, if other states had reacted to news of cuts in U.S. defense spending with more aggressive or insecure behavior, then internationalists would surely argue that their expectations had been fulfilled. If increases in conflict would have been interpreted as proof of the wisdom of internationalist strategies, then logical consistency demands that the lack thereof should at least pose a problem. As it stands, the only evidence we have regarding the likely systemic reaction to a more restrained United States suggests that the current peaceful trends are unrelated to U.S. military spending. Evidently the rest of the world can operate quite effectively without the presence of a global policeman. Those who think otherwise base their view on faith alone.

## warming

#### Wind’s a net negative for CO2

Zehner, 12

(Green illusions, Visiting Scholar-UC Berkeley, MS-University of Amsterdam-Science & Technology Studies, Google Books)

The presumed carbon benefits of a remote wind farm, if thoughtlessly situated, could be entirely wiped out by the destructive impact of the deforestation surrounding it—a humbling reminder that the technologies we create are only as durable as the contexts we create for them. Wind proponents are keen to proclaim that their turbines don't spew carbon dioxide. This is correct, but it is the answer to the wrong question. We'll consider some more revealing questions soon, but let's begin with a basic one: turbines may not exhaust co2 but what about the total carbon footprint of the mining, building, transporting, installing, clearing, maintaining, and decommissioning activities supporting them? Fossil fuels (including, especially, toxic bunker fuels) supply the power behind these operations. The largest and most efficient turbines rest upon massive carbon-intensive concrete bases, which support the hulking towers and (usually) prevent them from toppling in heavy winds. Any thoughtful consideration of the carbon implications of wind turbines should acknowledge these activities. Nevertheless, carbon footprint calculations can be rather shifty, even silly at times, despite their distinguished columns of numerical support. They hinge on human assumptions and simplifications. They ignore the numerous other harms of energy production, use, and distribution. They say nothing of political, economic, and social contexts. They offer only the most rudimentary place to start. Former UK leader of Parliament David Cameron installed a wind turbine on his London home, winning him positive reviews from econnoisseurs. However symbolically valuable, it was likely a waste of time, money, and energy according to carbon hawks. That's because homes, trees, towers, and other structures in cities choke airflow, which too often leaves the turbines unmotivated to spin. A British study claims that a third of small wind turbine locations in the windy coastal city of Portsmouth will never work off the carbon footprint invested to build and install them. A full two-thirds of Manchester's wind turbines leave their homes with a higher carbon footprint, not a lower one.14

Warming won’t cause extinction

Barrett, professor of natural resource economics – Columbia University, ‘7

(Scott, Why Cooperate? The Incentive to Supply Global Public Goods, introduction)

First, climate change does not threaten the survival of the human species.5 If unchecked, it will cause other species to become extinction (though biodiversity is being depleted now due to other reasons). It will alter critical ecosystems (though this is also happening now, and for reasons unrelated to climate change). It will reduce land area as the seas rise, and in the process displace human populations. “Catastrophic” climate change is possible, but not certain. Moreover, and unlike an asteroid collision, large changes (such as sea level rise of, say, ten meters) will likely take centuries to unfold, giving societies time to adjust. “Abrupt” climate change is also possible, and will occur more rapidly, perhaps over a decade or two. However, abrupt climate change (such as a weakening in the North Atlantic circulation), though potentially very serious, is unlikely to be ruinous. Human-induced climate change is an experiment of planetary proportions, and we cannot be sur of its consequences. Even in a worse case scenario, however, global climate change is not the equivalent of the Earth being hit by mega-asteroid. Indeed, if it were as damaging as this, and if we were sure that it would be this harmful, then our incentive to address this threat would be overwhelming. The challenge would still be more difficult than asteroid defense, but we would have done much more about it by now.

Sea level rise is junk science—models empirically fail

Gupta, Climate Change Research Centre @ University of New South Wales, et al., ‘12

(Alexander Sen, “Climate Drift in the CMIP3 Models,” *Journal of Climate* Vol. 25, Issue 13, p. 4621-4640)

As discussed above, drift in temperature and salinity dominates 20C3M trends throughout most of the subsurface ocean. In the calculation of steric sea level rise, a given temperature or salinity change will generally have less effect at depth than near the surface. As the amount of expansion for a given change in temperature or salinity is itself a function of temperature, salinity, and pressure (in particular warmer water expands more than colder water for the same increase in heat content), the changes in temperature near the warm surface ocean have a proportionally larger influence on steric sea level rise than temperature changes in the cold deeper ocean (at least away from the wellmixed high-latitude regions). Nevertheless, given that the global warming signal over the twentieth century is predominantly limited to the top few hundred meters, in most regions, while ocean drift extends through the entire water column, drift still introduces considerable bias into both regional and global sea level rise.

The CMIP3 models show a broad range of estimates for steric sea level rise over 1950–2000 (Fig. 10a). The spread in the raw 20C3M estimates is considerable (standard deviation ;0.76 mm yr21 with a multimodel mean of 0.45 mm yr21). In addition a number of the models indicate a lowering of sea level over the period. For the drift-corrected sea level rise (i.e., by using drift corrected temperature and salinity) values become considerably more consistent (standard deviation ;0.36 mm yr21) and all models now indicate a rise in sea level. While considerable intermodel variability still exists the driftcorrected multimodel mean (;0.59 mm yr21) is consistent with the Domingues et al. (2008) observational estimate (0.526 0.08 mm yr21, for 0–700 m, 1950–2003). Figure 10a shows raw 20C3M trends and drift-corrected estimates of forced trend for steric sea level rise, including multiple ensemble members where available; ensemble members for a given model are generally initialized from the same PICNTRL experiment but from different points in time, usually separated by multiple years (Table 1). Nevertheless the drift, which is derived from different time periods from a single PICNTRL simulation, is very similar across ensemble members, suggesting that the linear drift approximation is valid and that natural variability is not having a major effect on the drift estimates. Figure 10b shows a scatter of the raw 20C3M trend magnitudes versus drift magnitudes. The drift-related error varies considerably across the models from less than 10% to over 200% for the ECHAM4 model (see previous discussion of this model).

As with surface drift, subsurface drift in temperature and salinity is spatially heterogeneous and so can result in a larger bias on regional scales. This is particularly important for assessing twentieth-century regional changes, where the steric component of sea level rise is a major component of the total (e.g., Domingues et al. 2008). Figure 11 shows both the raw 20C3M and driftcorrected 1950–2000 trends for three models (calculated from the surface to the bottom). A few models (e.g., MRI-CGCM2.3.2) have a well-equilibrated preindustrial control throughout the ocean and so are essentially untroubled by drift. However, most models are significantly affected in certain regions. In fact for many models and regions the sign of the sea level trend is changed by the spurious drift. For instance in the CSIRO Mk3.0 model the steric sea level anomaly over much of the tropics and midlatitudes, estimated from the raw 20C3M temperature and salinity, changes sign once the drift is taken into account.

CO2 boosts plant performance and prevents mass starvation—avoids extinction

Singer, PhD physics – Princeton University and professor of environmental science – UVA, consultant – NASA, GAO, DOE, NASA, Carter, PhD paleontology – University of Cambridge, adjunct research professor – Marine Geophysical Laboratory @ James Cook University, and Idso, PhD Geography – ASU, ‘11

(S. Fred, Robert M. and Craig, “Climate Change Reconsidered,” 2011 Interim Report of the Nongovernmental Panel on Climate Change)

Regarding the first of these requirements, Tilman et al. note that in many parts of the world the historical rate of increase in crop yields is declining, as the genetic ceiling for maximal yield potential is being approached. This observation, in their words, ―highlights the need for efforts to steadily increase the yield potential ceiling.‖ With respect to the second requirement, they indicate, ―without the use of synthetic fertilizers, world food production could not have increased at the rate it did [in the past] and more natural ecosystems would have been converted to agriculture.‖ Hence, they state the solution ―will require significant increases in nutrient use efficiency, that is, in cereal production per unit of added nitrogen, phosphorus,‖ and so forth. Finally, as to the third requirement, Tilman et al. remind us ―water is regionally scarce,‖ and ―many countries in a band from China through India and Pakistan, and the Middle East to North Africa either currently or will soon fail to have adequate water to maintain per capita food production from irrigated land.‖ Increasing crop water use efficiency, therefore, is also a must. Although the impending biological crisis and several important elements of its potential solution are thus well defined, Tilman et al. (2001) noted ―even the best available technologies, fully deployed, cannot prevent many of the forecasted problems.‖ This was also the conclusion of Idso and Idso (2000), who stated that although ―expected advances in agricultural technology and expertise will significantly increase the food production potential of many countries and regions,‖ these advances ―will not increase production fast enough to meet the demands of the even faster-growing human population of the planet.‖ Fortunately, we have a powerful ally in the ongoing rise in the air‘s CO2 content that can provide what we can‘t. Since atmospheric CO2 is the basic ―food of essentially all plants, the more of it there is in the air, the bigger and better they grow. For a nominal doubling of the air‘s CO2 concentration, for example, the productivity of Earth‘s herbaceous plants rises by 30 to 50 percent (Kimball, 1983; Idso and Idso, 1994), and the productivity of its woody plants rises by 50 to 80 percent or more (Saxe et al. 1998; Idso and Kimball, 2001). Hence, as the air‘s CO2 content continues to rise, the land use efficiency of the planet will rise right along with it. In addition, atmospheric CO2 enrichment typically increases plant nutrient use efficiency and plant water use efficiency. Thus, with respect to all three of the major needs identified by Tilman et al. (2002), increases in the air‘s CO2 content pay huge dividends, helping to increase agricultural output without the taking of new land and water from nature. Many other researchers have broached this subject. In a paper recently published in the Annual Review of Plant Biology, three scientists associated with the Institute of Genomic Biology at the University of Illinois at Urbana-Champaign (USA) write that meeting the global increase in agricultural demand during this century ―is predicted to require a doubling of global production,‖ but ―the world has limited capacity to sustainably expand cropland,‖ and this capacity is actually ―shrinking in many developed countries.‖ Thus, Zhu et al. (2010) state, ―meeting future increases in demand will have to come from a near doubling of productivity on a land area basis,‖ and they conclude ―a large contribution will have to come from improved photosynthetic conversion efficiency,‖ estimating ―at least a 50% improvement will be required to double global production.‖ The researchers‘ reason for focusing on photosynthetic conversion efficiency derives from the experimentally observed facts that increases in the atmosphere‘s CO2 concentration increase the photosynthetic rates of nearly all plants, and those rate increases generally lead to equivalent—or only slightly smaller—increases in plant productivity on a land area basis. That provides a solid foundation for their enthusiasm in this regard. In their review of the matter, however, they examine the prospects for boosting photosynthetic conversion efficiency in an entirely different way: genetically, without increasing the air‘s CO2 content. ―Improving photosynthetic conversion efficiency will require,‖ the three scientists state, ―a full suite of tools including breeding, gene transfer, and synthetic biology in bringing about the designed alteration to photosynthesis.‖ For some of these ―near-term‖ endeavors, they indicate ―implementation is limited by technical issues that can be overcome by sufficient investment,‖ meaning they can ―be bought.‖ But several ―mid-term‖ goals could take 20 years or more to achieve; and they state ―even when these improvements are achieved, it may take an additional 10–20 years to bring such innovations to farms in commercial cultivars at adequate scale.‖ And if that is not bad enough, they say of still longer-term goals that ―too little of the science has been undertaken to identify what needs to be altered to effect an increase in yield,‖ while in some cases they acknowledge that what they envision may not even be possible, as in developing a form of RuBisCO that exhibits a significant decrease in oxygenation activity, or in designing C3 crops to utilize the C4 form of photosynthetic metabolism. Clearly, we do not have the time to gamble on our ability to accomplish what needs to be done in order to forestall massive human starvation of global dimensions within the current century. Therefore—in addition to trying what Zhu et al. suggest—we must rely on the ―tested and true: the CO2-induced stimulation of plant photosynthesis and crop yield production. And all we need to do in this regard is to refrain from interfering with the natural evolution of the Industrial Revolution, which is destined to be carried for some time yet on the backs of fossil-fuel-driven enterprises that can provide the atmosphere with the extra carbon dioxide that will be needed to provide the extra increase in crop growth that may mean the difference between global food sufficiency and human starvation on a massive scale a mere few decades from now. Another take on the matter has been provided by Hanjra and Qureshi (2010). They begin their treatment of the subject by quoting Benjamin Franklin‘s well-known homily, ―When the well is dry, we know the worth of water,‖ and they write we ―must not lose sight of surging water scarcity.‖ Noting ―population and income growth will increase the demand for food and water,‖ they contend ―irrigation will be the first sector to lose water, as water competition by non-agricultural uses increases and water scarcity intensifies.‖ As ―increasing water scarcity will have implications for food security, hunger, poverty, and ecosystem health and services,‖ they report ―feeding the 2050 population will require some 12,400 km3 of water, up from 6800 km3 used today.‖ This huge increase, they continue, ―will leave a water gap of about 3300 km3 even after improving efficiency in irrigated agriculture, improving water management, and upgrading of rainfed agriculture,‖ as per the findings of de Fraiture et al. (2007), Molden (2007), and Molden et al. (2010). This water deficiency, according to Hanjra and Qureshi, ―will lead to a food gap unless concerted actions are taken today.‖ Some of the measures they propose are to conserve water and energy resources, develop and adopt climate-resilient crop varieties, modernize irrigation, shore up domestic food supplies, reengage in agriculture for further development, and reform the global food and trade markets. To achieve these goals, they write, ―unprecedented global cooperation is required,‖ which by the looks of today‘s world is an exceedingly remote possibility. What, then, can we do to defuse the ticking time-bomb of this looming food and water crisis? One option is to do nothing: don‘t mess with the normal, unforced evolution of civilization‘s means of acquiring energy. This is because on top of everything else we may try to do to conserve both land and freshwater resources, we will still fall short of what is needed to be achieved unless the air‘s CO2 content rises significantly and thereby boosts the water use efficiency of Earth‘s crop plants and that of the plants that provide food and habitat for what could be called ―wild nature,‖ enabling both sets of plants to produce more biomass per unit of water used. To ensure this happens, we will need all of the CO2 that will be produced by the burning of fossil fuels, until other forms of energy truly become more cost-efficient than coal, gas, and oil. In fact, these other energy sources will have to become much more cost-efficient before fossil fuels are phased out, because the positive externality of the CO2-induced increase in plant water use efficiency provided by the steady rise in the atmosphere‘s CO2 concentration due to the burning of fossil fuels will be providing a most important service in helping us feed and sustain our own species without totally decimating what yet remains of wild nature. In yet another paper to address this important issue—this one published in the Journal of Proteome Research—Sarkar et al. (2010) write, ―increasing population and unsustainable exploitation of nature and natural resources have made ‗food security‘ a burning issue in the 21st century,‖ echoing the sentiments expressed by Farrell (2009), who noted ―the alarming increase in biofuel production, the projected demand for livestock products, and the estimated food to feed the additional 700 million people who will arrive here by 2016, will have unprecedented consequences,‖ among which are likely to be that ―arable land, the environment, water supply and sustainability of the agricultural system will all be affected,‖ and not in a positive way. Furthermore, when the human population of the globe reaches 8.7–11.3 billion by the year 2050 (Bengtsson et al., 2006), the situation will become truly intolerable, unless something is done, far in advance of that date, to mitigate the situation dramatically. Thus, as Sarkar et al. suggest, ―a normal approach for any nation/region is to strengthen its agricultural production for meeting future demands and provide food security.‖ But a major difficulty, which could spoil mankind‘s ability to do so, is the ongoing rise in the atmosphere‘s ozone concentration. This is the subject of Sarkar et al.‘s new paper. In a study designed to elucidate the many ways in which ozone (O3) is harmful to plants, the eight researchers grew two high-yielding cultivars (Sonalika and HUW 510) of wheat (Triticum aestivum L.) outdoors at the Agriculture Research Farm of India‘s Banaras Hindu University. This was done within open-top chambers maintained at the ambient O3 concentration and at elevated O3 concentrations of 25 percent and 50 percent above ambient during the peak O3 period of the day (10:00 to 15:00 hours local time) for a total of 50 days, during which time they measured numerous responses of the plants to the two levels of ozone enrichment. Sarkar et al. determined, among several other things, that the moderate increases in the air‘s O3 concentration resulted in higher foliar injury, a reduction in photosynthetic efficiency, induced inhibition in photochemical efficacy of photosystem II, lowered concentrations of photosynthetic pigments and proteins, and what they describe as ―drastic reductions‖ in RuBisCO large and small subunits, while noting major leaf photosynthetic proteins and important energy metabolism proteins were also ―drastically reduced.‖ Discussing the results, the scientists from India, Japan, and Nepal remark that anthropogenic activities have made ozone a ―major environmental pollutant of our time,‖ while noting some are predicting it to be an even ―greater problem for the future.‖ Adding this dilemma to the problem of feeding the world over the next few decades and beyond makes humanity‘s future look incredibly bleak. Thus, Sarkar et al. suggest we focus on ―engineering crops for future high O3,‖ concentrating on maintaining ―effective stomatal conductance of plants which can avoid O3 entry but not hamper their productivity.‖ We agree. But not knowing to what extent we will be successful in this endeavor, we also need to do something we know will work: allowing the air‘s CO2 content to rise, unimpeded by the misguided efforts of those who would curtail anthropogenic CO2 emissions in the guise of fighting what they claim is anthropogenic-induced global warming. This contention is largely theoretical and wholly unproven, but we know, as a result of literally hundreds, if not thousands, of real-world experiments, that atmospheric CO2 enrichment increases both the productivity and water-use efficiency of nearly all plants, and that it often more than compensates for the negative effects of O3 pollution. Introducing another review of food security studies pertinent to the challenge of feeding 9 billion people just four decades from now, Godfray et al. (2010) note ―more than one in seven people today still do not have access to sufficient protein and energy from their diet and even more suffer some form of micronutrient malnourishment,‖ citing the FAO (2009). Although ―increases in production will have an important part to play‖ in correcting this problem and keeping it from worsening in the future, mankind ―will be constrained by the finite resources provided by the earth‘s lands, oceans and atmosphere,‖ This set of difficulties they describe at the end of their review as constituting a ―perfect storm.‖ In considering ways to mitigate these problems, the first question they ask is: ―How can more food be produced sustainably?‖ They state the primary solution to food shortages of the past was ―to bring more land into agriculture and to exploit new fish stocks,‖ but they note there is precious little remaining of either of these pristine resources. Thus, they conclude ―the most likely scenario is that more food will need to be produced from the same or less land.‖ As they suggest, ―we must avoid the temptation to sacrifice further the earth‘s already hugely depleted biodiversity for easy gains in food production, not only because biodiversity provides many of the public goods upon which mankind relies, but also because we do not have the right to deprive future generations of its economic and cultural benefits.‖ And, we might add, because we should be enlightened enough to realize we have a moral responsibility to drive no more species to extinction than we already have sent to that sorry state. So how can these diverse requirements all be met simultaneously? A clue comes from Godfray et al.‘s statement that ―greater water and nutrient use efficiency, as well as tolerance of abiotic stress, are likely to become of increasing importance.‖ And what is there that can bring about these changes in mankind‘s crops? You guessed it: carbon dioxide. Rising concentrations of atmospheric CO2 increase the photosynthetic prowess of essentially all of the Earth‘s plants, while generally reducing the rate at which they transfer water from the soil to the air. In addition, more CO2 in the air tends to enhance the efficiency with which plants utilize nutrients in constructing their tissues and producing the edible portions that we and all of Earth‘s animals depend upon for our very existence. Focusing on the water scarcity aspect of the food shortage problem, Kummu et al. (2010) write, ―due to the rapidly increasing population and water use per capita in many areas of the world, around one third of the world‘s population currently lives under physical water scarcity (e.g. Vorosmarty et al., 2000; Alcamo et al., 2003; Oki and Kanae, 2006).‖ But despite the large number of water scarcity studies conducted over the years, ―no global assessment is available of how this trend has evolved over the past several centuries to millennia.‖ Thus they conducted a study covering AD 0 to 2005. This analysis was carried out for ten different time slices, defined as those times at which the human population of the globe was approximately double the population of the previous time slice. Global population data for these analyses were derived from the 5‘ latitude x 5‘ longitude-resolution global HYDE dataset of Klein Goldewijk (2005) and Klein Goldewijk et al. (2010), while evaluation of water resources availability over the same period was based on monthly temperature and precipitation output from the climate model ECBilt-CLIO-VECODE, as calculated by Renssen et al. (2005). After completing these assessments, the four researchers found ―moderate water shortage first appeared around 1800, but it commenced in earnest from about 1900, when 9% of the world population experienced water shortage, of which 2% was under chronic water shortage (<1000 m3/capita/year).‖ Thereafter, from 1960 onwards, they write, ―water shortage increased extremely rapidly, with the proportion of global population living under chronic water shortage increasing from 9% (280 million people) in 1960 to 35% (2300 million) in 2005.‖ And currently, they continue, ―the most widespread water shortage is in South Asia, where 91% of the population experiences some form of water shortage,‖ while ―the most severe shortage is in North Africa and the Middle East, where 77% and 52% of the total population lives under extreme water shortage (<500 m3/capita/year), respectively.‖ To alleviate these freshwater shortages, Kummu et al. state measures generally have been taken to increase water availability, such as building dams and extracting groundwater. But they note ―there are already several regions in which such measures are no longer sufficient, as there is simply not enough water available in some regions.‖ In addition, they observe, ―this problem is expected to increase in the future due to increasing population pressure (e.g. United Nations, 2009), higher welfare (e.g. Grubler et al., 2007) [and] production of water intensive biofuels (e.g. Varis, 2007, Berndes, 2008).‖ Hence, they conclude there will be an increasing need for many nonstructural measures, the first and foremost of which they indicate to be ―increasing the efficiency of water use.‖ This characteristic of nearly all of Earth‘s plants is almost universally promoted by atmospheric CO2 enrichment.

Causes food wars and extinction

Brown, 9 – founder of the Worldwatch Institute and the Earth Policy Institute

(Lester R, “Can Food Shortages Bring Down Civilization?” Scientific American, May)

The biggest threat to global stability is the potential for food crises in poor countries to cause government collapse. Those crises are brought on by ever worsening environmental degradation

One of the toughest things for people to do is to anticipate sudden change. Typically we project the future by extrapolating from trends in the past. Much of the time this approach works well. But sometimes it fails spectacularly, and people are simply blindsided by events such as today's economic crisis.

For most of us, the idea that civilization itself could disintegrate probably seems preposterous. Who would not find it hard to think seriously about such a complete departure from what we expect of ordinary life? What evidence could make us heed a warning so dire--and how would we go about responding to it? We are so inured to a long list of highly unlikely catastrophes that we are virtually programmed to dismiss them all with a wave of the hand: Sure, our civilization might devolve into chaos--and Earth might collide with an asteroid, too! For many years I have studied global agricultural, population, environmental and economic trends and their interactions. The combined effects of those trends and the political tensions they generate point to the breakdown of governments and societies. Yet I, too, have resisted the idea that food shortages could bring down not only individual governments but also our global civilization.

I can no longer ignore that risk. Our continuing failure to deal with the environmental declines that are undermining the world food economy--most important, falling water tables, eroding soils and rising temperatures--forces me to conclude that such a collapse is possible. The Problem of Failed States   Even a cursory look at the vital signs of our current world order lends unwelcome support to my conclusion. And those of us in the environmental field are well into our third decade of charting trends of environmental decline without seeing any significant effort to reverse a single one. In six of the past nine years world grain production has fallen short of consumption, forcing a steady drawdown in stocks. When the 2008 harvest began, world carryover stocks of grain (the amount in the bin when the new harvest begins) were at 62 days of consumption, a near record low. In response, world grain prices in the spring and summer of last year climbed to the highest level ever.As demand for food rises faster than supplies are growing, the resulting food-price inflation puts severe stress on the governments of countries already teetering on the edge of chaos. Unable to buy grain or grow their own, hungry people take to the streets. Indeed, even before the steep climb in grain prices in 2008, the number of failing states was expanding [see sidebar at left]. Many of their problem's stem from a failure to slow the growth of their populations. But if the food situation continues to deteriorate, entire nations will break down at an ever increasing rate. We have entered a new era in geopolitics. In the 20th century the main threat to international security was superpower conflict; today it is failing states. It is not the concentration of power but its absence that puts us at risk.States fail when national governments can no longer provide personal security, food security and basic social services such as education and health care. They often lose control of part or all of their territory. When governments lose their monopoly on power, law and order begin to disintegrate. After a point, countries can become so dangerous that food relief workers are no longer safe and their programs are halted; in Somalia and Afghanistan, deteriorating conditions have already put such programs in jeopardy.Failing states are of international concern because they are a source of terrorists, drugs, weapons and refugees, threatening political stability everywhere. Somalia, number one on the 2008 list of failing states, has become a base for piracy. Iraq, number five, is a hotbed for terrorist training. Afghanistan, number seven, is the world's leading supplier of heroin. Following the massive genocide of 1994 in Rwanda, refugees from that troubled state, thousands of armed soldiers among them, helped to destabilize neighboring Democratic Republic of the Congo (number six).Our global civilization depends on a functioning network of politically healthy nation-states to control the spread of infectious disease, to manage the international monetary system, to control international terrorism and to reach scores of other common goals. If the system for controlling infectious diseases--such as polio, SARS or avian flu--breaks down, humanity will be in trouble. Once states fail, no one assumes responsibility for their debt to outside lenders. If enough states disintegrate, their fall will threaten the stability of global civilization itself.

Existing carbon triggers the impact

Daniel **Rirdan 12**, founder of The Exploration Company, “The Right Carbon Concentration Target”, June 29, <http://theenergycollective.com/daniel-rirdan/89066/what-should-be-our-carbon-concentration-target-and-forget-politics?utm_source=feedburner&utm_medium=feed&utm_campaign=The+Energy+Collective+%28all+posts%29>

James Hansen and other promi­nent cli­ma­tol­o­gists are call­ing to bring the CO2 atmos­pheric level to 350 parts per million. In fact, an orga­ni­za­tion, 350.org, came around that ral­ly­ing cry. This is far more radical than most politicians are willing to entertain. And it is not likely to be enough. The 350ppm target will not reverse the clock as far back as one may assume. It was in 1988 that we have had these level of car­bon con­cen­tra­tion in the air. But wait, there is more to the story. 1988-levels of CO2 with 2012-levels of all other green­house gases bring us to a state of affairs equiv­a­lent to that around 1994 (2.28 w/m2). And then there are aerosols. There is good news and bad news about them. The good news is that as long as we keep spewing mas­sive amounts of particulate matter and soot into the air, more of the sun’s rays are scattered back to space, over­all the reflec­tiv­ity of clouds increases, and other effects on clouds whose over­all net effect is to cool­ing of the Earth sur­face. The bad news is that once we stop polluting, stop run­ning all the diesel engines and the coal plants of the world, and the soot finally settles down, the real state of affairs will be unveiled within weeks. Once we fur­ther get rid of the aerosols and black car­bon on snow, we may be very well be worse off than what we have had around 2011 (a pos­si­ble addi­tion of 1.2 w/m2). Thus, it is not good enough to stop all green­house gas emis­sions. In fact, it is not even close to being good enough. A carbon-neutral econ­omy at this late stage is an unmit­i­gated disaster. There is a need for a carbon-negative economy. Essentially, it means that we have not only to stop emitting, to the tech­no­log­i­cal extent pos­si­ble, all green­house gases, but also capture much of the crap we have already out­gassed and lock it down. And once we do the above, the ocean will burp its excess gas, which has come from fos­sil fuels in the first place. So we will have to draw down and lock up that carbon, too. We have taken fos­sil fuel and released its con­tent; now we have to do it in reverse—hundreds of bil­lions of tons of that stuff.

CO2 isn’t key

Watts, 25-year climate reporter, works with weather technology, weather stations, and weather data processing systems in the private sector, 7/25/’12

(Anthony, <http://wattsupwiththat.com/2012/07/25/lindzen-at-sandia-national-labs-climate-models-are-flawed/>)

ALBUQUERQUE, N.M. — Massachusetts Institute of Technology professor Richard Lindzen, a global warming skeptic, told about 70 Sandia researchers in June that too much is being made of climate change by researchers seeking government funding. He said their data and their methods did not support their claims.

“Despite concerns over the last decades with the greenhouse process, they oversimplify the effect,” he said. “Simply cranking up CO2 [carbon dioxide] (as the culprit) is not the answer” to what causes climate change.

Lindzen, the ninth speaker in Sandia’s Climate Change and National Security Speaker Series, is Alfred P. Sloan professor of meteorology in MIT’s department of earth, atmospheric and planetary sciences. He has published more than 200 scientific papers and is the lead author of Chapter 7 (“Physical Climate Processes and Feedbacks”) of the International Panel on Climate Change’s (IPCC) Third Assessment Report. He is a member of the National Academy of Sciences and a fellow of the American Geophysical Union and the American Meteorological Society.

For 30 years, climate scientists have been “locked into a simple-minded identification of climate with greenhouse-gas level. … That climate should be the function of a single parameter (like CO2) has always seemed implausible. Yet an obsessive focus on such an obvious oversimplification has likely set back progress by decades,” Lindzen said.

For major climates of the past, other factors were more important than carbon dioxide. Orbital variations have been shown to quantitatively account for the cycles of glaciations of the past 700,000 years, he said, and the elimination of the arctic inversion, when the polar caps were ice-free, “is likely to have been more important than CO2 for the warm episode during the Eocene 50 million years ago.”

There is little evidence that changes in climate are producing extreme weather events, he said. “Even the IPCC says there is little if any evidence of this. In fact, there are important physical reasons for doubting such anticipations.”

Lindzen’s views run counter to those of almost all major professional societies. For example, the American Physical Society statement of Nov. 18, 2007, read, “The evidence is incontrovertible: Global warming is occurring.” But he doesn’t feel they are necessarily right. “Why did the American Physical Society take a position?” he asked his audience. “Why did they find it compelling? They never answered.”

Speaking methodically with flashes of humor — “I always feel that when the conversation turns to weather, people are bored.” — he said a basic problem with current computer climate models that show disastrous increases in temperature is that relatively small increases in atmospheric gases lead to large changes in temperatures in the models.

But, he said, “predictions based on high (climate) sensitivity ran well ahead of observations.”

Real-world observations do not support IPCC models, he said: “We’ve already seen almost the equivalent of a doubling of CO2 (in radiative forcing) and that has produced very little warming.”

He disparaged proving the worth of models by applying their criteria to the prediction of past climatic events, saying, “The models are no more valuable than answering a test when you have the questions in advance.”

Modelers, he said, merely have used aerosols as a kind of fudge factor to make their models come out right. (Aerosols are tiny particles that reflect sunlight. They are put in the air by industrial or volcanic processes and are considered a possible cause of temperature change at Earth’s surface.)

Then there is the practical question of what can be done about temperature increases even if they are occurring, he said. “China, India, Korea are not going to go along with IPCC recommendations, so … the only countries punished will be those who go along with the recommendations.”

He discounted mainstream opinion that climate change could hurt national security, saying that “historically there is little evidence of natural disasters leading to war, but economic conditions have proven much more serious. Almost all proposed mitigation policies lead to reduced energy availability and higher energy costs. All studies of human benefit and national security perspectives show that increased energy is important.”

He showed a graph that demonstrated that more energy consumption leads to higher literacy rate, lower infant mortality and a lower number of children per woman.

Given that proposed policies are unlikely to significantly influence climate and that lower energy availability could be considered a significant threat to national security, to continue with a mitigation policy that reduces available energy “would, at the least, appear to be irresponsible,” he argued.

Responding to audience questions about rising temperatures, he said a 0.8 of a degree C change in temperature in 150 years is a small change. Questioned about five-, seven-, and 17-year averages that seem to show that Earth’s surface temperature is rising, he said temperatures are always fluctuating by tenths of a degree.

Natural variability explains warming trends

Idso, director of envt science – Peabody Energy, PhD Geography – ASU, Idso, professor – Maricopa County Community College, and Idso, PhD botany – ASU, ‘12

(Craig, Sherwood, and Keith, “Northern Scandinavian Temperatures: It's a Whole New Ball Game,” CO2 Science Vol. 15, No. 30, July)

In a game-changing paper published in the online version of Nature Climate Change, Esper et al. (8 July 2012) provide convincing evidence that both the Medieval and Roman Warm Periods of 1000 and 2000 years ago, respectively, were warmer than the Current Warm Period has been to date, in spite of the fact that today's atmospheric CO2 concentration is some 40% greater than it was during those two earlier periods.

In setting the stage for their paradigm-altering work, the twelve researchers - hailing from Finland, Germany, Scotland and Switzerland - write that "solar insolation changes, resulting from long-term oscillations of orbital configurations (Milankovitch, 1941), are an important driver of Holocene climate," referencing the studies of Mayewski et al. (2004) and Wanner et al. (2008). In addition, they state that this forcing has been "substantial over the past 2000 years, up to four times as large as the 1.6 W/m2 net anthropogenic forcing since 1750," as suggested by the work of Berger and Loutre (1991). And on the basis of "numerous high-latitude proxy records," as they describe it, they note that "slow orbital changes have recently been shown to gradually force boreal summer temperature cooling over the common era," citing Kaufman et al. (2009).

Fast-forwarding to the present, Esper et al. describe how they developed "a 2000-year summer temperature reconstruction based on 587 high-precision maximum latewood density (MXD) series from northern Scandinavia," which feat was accomplished "over three years using living and subfossil pine (Pinus sylvestris) trees from 14 lakes and 3 lakeshore sites above 65°N, making it not only longer but also much better replicated than any existing MXD time series." Then, after calibrating the pine MXD series against regional June-July-August mean temperature over the period 1876-2006, they obtained their final summer temperature history for the period stretching from 138 BC to AD 2006, as depicted in the graph below.

As determined from the relationship depicted in the figure above, Esper et al. calculate a long-term cooling trend of -0.31 ± 0.03°C per thousand years, which cooling they say is "missing in published tree-ring proxy records" but is "in line with coupled general circulation models (Zorita et al., 2005; Fischer and Jungclaus, 2011)," which computational results portray, as they describe it: substantial summer cooling over the past two millennia in northern boreal and Arctic latitudes.

"These findings," as the European researchers continue, "together with the missing orbital signature in published dendrochronological records, suggest that large-scale near-surface air temperature reconstructions (Mann et al., 1999; Esper et al., 2002; Frank et al., 2007; Hegerl et al., 2007; Mann et al., 2008) relying on tree-ring data may underestimate pre-instrumental temperatures including warmth during Medieval and Roman times," although they suggest that the impacts of the omitted long-term trend in basic tree-ring data may "diminish towards lower Northern Hemisphere latitudes, as the forcing and radiative feedbacks decrease towards equatorial regions."

And so it is that the question for our day ought to be: Why was much of the CO2-starved world of Medieval and Roman times decidedly warmer (by about 0.3 and 0.5°C, respectively) than it was during the peak warmth of the 20th century? Clearly, the greenhouse effect of atmospheric CO2 - if it has not been grossly over-estimated - must currently be being significantly tempered by some unappreciated CO2- and/or warming-induced negative-feedback phenomenon (possibly of biological origin) to the degree that the basic greenhouse effect of earth's rising atmospheric CO2 concentration cannot fully compensate for the decrease in solar insolation experienced over the past two millennia as a result of the "long-term oscillations of orbital configurations" cited by Esper et al. (2012).

Especially solar system dynamics

Scafetta, professor of physics – Duke, works at the Active Cavity Radiometer Irradiance Monitor Lab – Coronado, CA, ‘10

(Nicola, “Empirical evidence for a celestial origin of the climate oscillations and its implications,” *Journal of Atmospheric and Solar-Terrestrial Physics* Vol. 72, No. 13, p. 951–970)

On secular, millenarian and larger time scales astronomical oscillations and solar changes drive climate variations. Shaviv’s theory [2003] can explain the large 145 Myr climate oscillations during the last 600 million years. Milankovic’s theory [1941] can explain the multi-millennial climate oscillations**¶** observed during the last 1000 kyr. Climate oscillations with¶ periods of 2500, 1500, and 1000 years during the last 10,000¶ year (the Holocene) are correlated to equivalent solar cycles¶ that caused the Minoan, Roman, Medieval and Modern warm¶ periods [Bond *et al.*, 2001; Kerr, 2001]. Finally, several other¶ authors found that multisecular solar oscillations caused bisecular¶ little ice ages (for example: the Sp¨orer, Maunder, Dalton¶ minima) during the last 1000 years [for example: Eddy,¶ 1976; Eichler *et al.*, 2009; Scafetta and West, 2007; Scafetta, 2009, 2010].

Herein, we have found empirical evidences that the climate¶ oscillations within the secular scale are very likely driven by¶ astronomical cycles, too. Cycles with periods of 10-11, 12, 15,¶ 20-22, 30 and 60 years are present in all major surface temperature¶ records since 1850, and can be easily linked to the orbits¶ of Jupiter and Saturn. The 11 and 22-year cycles are the wellknown¶ Schwabe and Hale solar cycles. Other faster cycles with¶ periods between 5 and 10 years are in common between the¶ temperature records and the astronomical cycles. Long-term¶ lunar cycles induce a 9.1-year cycle in the temperature records¶ and probably other cycles, including an 18.6-year cycle in some¶ regions [McKinnell and Crawford, 2007]. A quasi-60 year cycle¶ has been found in numerous multi-secular climatic records,¶ and it is even present in the traditional Chinese, Tibetan and¶ Tamil calendars, which are arranged in major 60-year cycles.¶ The physical mechanisms that would explain this result are¶ still unknown. Perhaps the four jovian planets modulate solar¶ activity via gravitational and magnetic forces that cause tidal¶ and angular momentum stresses on the Sun and its heliosphere.

Then, a varying Sun modulates climate, which amplifies the effects¶ of the solar input through several feedback mechanisms.¶ This phenomenon is mostly regulated by Jupiter and Saturn,¶ plus some important contribution from Neptune and Uranus,¶ which modulate a bi-secular cycle with their 172 year synodic¶ period. This interpretation is supported by the fact that the 11-¶ year solar cycles and the solar flare occurrence appear synchronized¶ to the tides generated on the Sun by Venus, Earth and¶ Jupiter [Hung, 2007]. Moreover, a 60-year cycle and other¶ planetary cycles have been found in millennial solar records¶ [Ogurtsov *et al.*, 2002] and in the number of middle latitude¶ auroras [Komitov, 2009].

Alternatively, the planets are directly influencing the Earth’s¶ climate by modulating the orbital parameters of the Earth-Moon¶ system and of the Earth. Orbital parameters can modulate the¶ Earth’s angular momentum via gravitational tides and magnetic¶ forces. Then, these orbital oscillations are amplified by the climate¶ system through synchronization of its natural oscillators.¶ This interpretation is supported by the fact that the temperature¶ records contain a clear 9.1-year cycle, which is associated to¶ some long-term lunar tidal cycles. However, the climatic influence¶ of theMoon may be more subtle because several planetary¶ cycles are also found in the Earth-Moon system.¶ The astronomical forcings may be modulating the length¶ of the day (LOD). LOD presents a 60-year cycle that anticipates¶ the 60-year temperature cycle [Klyashtorin 2001; Klyashtorin¶ and Lyubushin, 2007, 2009; Mazzarella, 2007, 2008;¶ Sidorenkov and Wilson, 2009]. A LOD change can drive the¶ ocean oscillations by exerting some pressure on the ocean floor¶ and by modifying the Coriolis’ forces. In particular, the large¶ ocean oscillations such as the AMO and PDO oscillations are¶ likely driven by astronomical oscillations.¶ The results herein found show that the climate oscillations¶ are driven by multiple astronomical mechanisms. Indeed, the¶ planets with their movement cause the entire solar system to¶ vibrate with a set of frequencies that are closely related to the¶ orbital periods of the planets. The wobbling of the Sun around¶ the center of mass of the solar system is just the clearest manifestation¶ of these solar system vibrations and has been used¶ herein just as a proxy for studying those vibrations. The Sun,¶ the Earth-Moon system and the Earth feel these oscillations,¶ and it is reasonable that the internal physical processes of the¶ Earth and the Sun synchronize to them.

It is evident that we can still infer, by means of a detailed data¶ analysis, that the solar system likely induces the climate oscillations,¶ although the actual mechanisms that explain the observed¶ climate oscillations are still unknown. If the true climate mechanisms¶ were already known and well understood, the general¶ circulation climate models would properly reproduce the cli-¶ mate oscillations. However, we found that this is not the case.¶ For example, we showed that the GISS ModelE fails to reproduce¶ the climate oscillations at multiple time scales, including¶ the large 60-year cycle. This failure is common to all climate¶ models adopted by the IPCC [2007] as it is evident in their figures¶ 9.5 and SPM.5 that show the multi-model global average¶ simulation of surface warming. This failure indicates that the¶ models on which the IPCC’s claims are based are still incomplete¶ and possibly flawed.

The existence of a 60-year natural cycle in the climate system,¶ which is clearly proven in multiple studies and herein in¶ Figures 2, 6, 10 and 12, indicates that the AGWT promoted by¶ the IPCC [2007], which claims that 100% of the global warming¶ observed since 1970 is anthropogenic, is erroneous. In fact,¶ since 1970 a globalwarming of about 0.5 *oC* has been observed.¶ However, from 1970 to 2000 the 60-year natural cycle was in¶ his warming phase and has contributed no less than 0.3 *oC* of the¶ observed 0.5 *oC* warming, as Figure 10B shows. Thus, at least¶ 60% of the observed warming since 1970 has been naturally¶ induced. This leaves less than 40% of the observed warming¶ to human emissions. Consequently, the current climate models,¶ by failing to simulate the observed quasi-60 year temperature¶ cycle, have significantly overestimated the climate sensitivity¶ to anthropogenic GHG emissions by likely a factor of three.¶ Moreover, the upward trend observed in the temperature data¶ since 1900may be partially due to land change use, uncorrected¶ urban heat island effects [McKitrick andMichaels, 2007;McKitrick,¶ 2010] and to the bi-secular and millennial solar cycles¶ that reached their maxima during the last decades [Bond *et al.*,¶ 2001; Kerr, 2001; Eichler *et al.*, 2009; Scafetta, 2010].

# 2NC

## cp

#### Economist says govt funding would be great if it were funded—CP solves

#### O’hare

It is clearly time for policymakers to get serious about modernizing the nation’s infrastructure policy. We need a long term strategy that prioritizes investment in our economically vital gateways and corridors and on projects that will provide the greatest economic returns. MAP-21 has started to lay the groundwork for much needed policy reforms with regard to surface transportation but more needs to be done. For example, it has been roughly five years since Congress approved that last WRDA bill. This looks to change in the 113th Congress as both Chairmen Shuster and Boxer have made passage of a new WRDA a bill a priority for both of their committees. That is welcome news.¶ But until these long term strategies are put in place, the U.S. risks having our global economic competitors pass us by. We must not allow that to happen

#### Kiefer

The benefits of harbor improvements are numerous. Expenditures for harbor improvements have facilitated international trade by providing ships more efficient access to the Nation's ports. International trade in turn creates and sustains jobs and generates Federal tax revenues. Foreign commerce has become crucial to the economic well-being of the United States. In 1946, U.S. international trade represented a relatively small portion of the U.S. economy, but today foreign trade accounts for 27 percent of U.S. gross domestic product. Harbor improvements also affect prices of U.S. imports and exports. With deeper channels vessel operators can load more cargo onto a ship and sail deeper, or they can use larger more efficient vessels. Unit transportation costs decline and lower transportation costs are reflected in commodity prices. Intangible benefits are also important. Free trade promotes international relations and stability and bolsters the United States’ position as a world leader. Lastly, it is important to stress that the economic benefits of international trade are widespread and are not limited to a handful of coastal states.

## 2nc no impact

#### Their laundry list of vague impacts is academic junk – conflicts can’t just emerge

Fettweis, 11

Christopher J. Fettweis, Department of Political Science, Tulane University, 9/26/11, Free Riding or Restraint? Examining European Grand Strategy, Comparative Strategy, 30:316–332, EBSCO

Assertions that without the combination of U.S. capabilities, presence and commitments instability would return to Europe and the Pacific Rim are usually rendered in rather vague language. If the United States were to decrease its commitments abroad, argued Robert Art, “the world will become a more dangerous place and, sooner or later, that will redound to America’s detriment.”53 From where would this danger arise? Who precisely would do the fighting, and over what issues? Without the United States, would Europe really descend into Hobbesian anarchy? Would the Japanese attack mainland China again, to see if they could fare better this time around? Would the Germans and French have another go at it? In other words, where exactly is hegemony is keeping the peace? With one exception, these questions are rarely addressed.

That exception is in the Pacific Rim. Some analysts fear that a de facto surrender of U.S. hegemony would lead to a rise of Chinese influence. Bradley Thayer worries that Chinese would become “the language of diplomacy, trade and commerce, transportation and navigation, the internet, world sport, and global culture,” and that Beijing would come to “dominate science and technology, in all its forms” to the extent that soon the world would witness a Chinese astronaut who not only travels to the Moon, but “plants the communist flag on Mars, and perhaps other planets in the future.”54 Indeed China is the only other major power that has increased its military spending since the end of the Cold War, even if it still is only about 2 percent of its GDP. Such levels of effort do not suggest a desire to compete with, much less supplant, the United States. The much-ballyhooed, decade-long military buildup has brought Chinese spending up to somewhere between one-tenth and one-fifth of the U.S. level. It is hardly clear that a restrained United States would invite Chinese regional, must less global, political expansion. Fortunately one need not ponder for too long the horrible specter of a red flag on Venus, since on the planet Earth, where war is no longer the dominant form of conflict resolution, the threats posed by even a rising China would not be terribly dire. The dangers contained in the terrestrial security environment are less severe than ever before.

Believers in the pacifying power of hegemony ought to keep in mind a rather basic tenet: When it comes to policymaking, specific threats are more significant than vague, unnamed dangers. Without specific risks, it is just as plausible to interpret U.S. presence as redundant, as overseeing a peace that has already arrived. Strategy should not be based upon vague images emerging from the dark reaches of the neoconservative imagination.

Overestimating Our Importance

One of the most basic insights of cognitive psychology provides the final reason to doubt the power of hegemonic stability: Rarely are our actions as consequential upon their behavior as we perceive them to be. A great deal of experimental evidence exists to support the notion that people (and therefore states) tend to overrate the degree to which their behavior is responsible for the actions of others. Robert Jervis has argued that two processes account for this overestimation, both of which would seem to be especially relevant in the U.S. case.55 First, believing that we are responsible for their actions gratifies our national ego (which is not small to begin with; the United States is exceptional in its exceptionalism). The hubris of the United States, long appreciated and noted, has only grown with the collapse of the Soviet Union.56 U.S. policymakers famously have comparatively little knowledge of—or interest in—events that occur outside of their own borders. If there is any state vulnerable to the overestimation of its importance due to the fundamental misunderstanding of the motivation of others, it would have to be the United States. Second, policymakers in the United States are far more familiar with our actions than they are with the decision-making processes of our allies. Try as we might, it is not possible to fully understand the threats, challenges, and opportunities that our allies see from their perspective. The European great powers have domestic politics as complex as ours, and they also have competent, capable strategists to chart their way forward. They react to many international forces, of which U.S. behavior is only one. Therefore, for any actor trying to make sense of the action of others, Jervis notes, “in the absence of strong evidence to the contrary, the most obvious and parsimonious explanation is that he was responsible.”57

It is natural, therefore, for U.S. policymakers and strategists to believe that the behavior of our allies (and rivals) is shaped largely by what Washington does. Presumably Americans are at least as susceptible to the overestimation of their ability as any other people, and perhaps more so. At the very least, political psychologists tell us, we are probably not as important to them as we think. The importance of U.S. hegemony in contributing to international stability is therefore almost certainly overrated.

In the end, one can never be sure why our major allies have not gone to, and do not even plan for, war. Like deterrence, the hegemonic stability theory rests on faith; it can only be falsified, never proven. It does not seem likely, however, that hegemony could fully account for twenty years of strategic decisions made in allied capitals if the international system were not already a remarkably peaceful place. Perhaps these states have no intention of fighting one another to begin with, and our commitments are redundant. European great powers may well have chosen strategic restraint because they feel that their security is all but assured, with or without the United States.

#### Even if heg is good, US wouldn’t deploy – offshore balancing and nukes solve the impact

Adams, Professor U.S. Foreign Policy Program – American University, Distinguished Fellow – Stimson Center, ‘11

(Gordon, “A Leaner and Meaner Defense,” *Foreign Affairs*, Vol. 90 Iss. 1, January/February)

Some people point to China as a successor to the Soviet Union and cite it as a reason why preventing and preparing for nuclear or large-scale conventional war should remain priority missions. They highlight the risk of a U.S.-Chinese conflict over Taiwan or the possibility that China will deny the U.S. military access to the western Pacific. Of course, China is a rising power that is making increasingly substantial investments in defense. But it is important not to overreact to this fact. Focusing on China's military capabilities ought not replace a broader strategy. As the United States determines how to engage China and how to protect its interests in Asia generally, it must balance the diplomatic, economic, and financial, as well as the military, elements of its policy. Most defense analysts estimate that China's military investments and capabilities are decades behind those of the United States, and there is very little evidence that China seeks a conventional conflict with the United States. There is substantial evidence that China's economic and financial policy is a more urgent problem for the United States, but one of the best ways for the United States to respond to that is to get its fiscal house in order.

The prospect of a major war with other states is even less plausible. Defense planning scenarios in the 1990s were built around the possibility of two conflicts. The one involving Iraq is now off the table. A conflict with North Korea was the second, but although that country's military is numerically impressive, South Korea's state-of-the-art armed forces can manage that challenge without needing the assistance of U.S. troops. The United States can now limit its contribution to strategic nuclear deterrence, air support, and offshore naval balancing in the region. The prospect of a conventional war with Iran is not credible. Iran's vast size, to say nothing of the probability that the population would be hostile to any U.S. presence there, means that anything more than U.S. air strikes and Special Forces operations targeting Iranian nuclear capabilities is unlikely.

Given the stakes, some hedging for these exceedingly low-probability risks is reasonable. But even a smaller U.S. force and budget than today's would be ample because many of these risks are less likely than ever and the United States' allies now enjoy unprecedented military and strategic advantages. The most vexing missions are those at the heart of the Quadrennial Defense Review: counterinsurgency, nation building, and the building of other countries' security sectors, among others. And these, alongside competition with China, are motivating Gates and other planners at the Pentagon, despite Gates' acknowledgment in this magazine last spring that "the United States is unlikely to repeat a mission on the scale of those in Afghanistan or Iraq anytime soon -- that is, forced regime change followed by nation building under fire." Such planned missions are based on a misguided premise: that the U.S. campaigns in Afghanistan and Iraq foreshadow the need for a large U.S. military force to increasingly intervene in failing states teeming with insurgents and terrorists. But Gates' effort to nonetheless tailor U.S. military capabilities to such tasks suggests that there is still significant support for them in the Pentagon. According to General George Casey, the army chief of staff, for example, the United States is in an "era of persistent conflict." Yet the United States is very unlikely to embark on another regime-change and nation-building mission in the next decade -- nor should it. Indeed, in the wake of its operations in Afghanistan and Iraq, the demand for the United States to act as global policeman will decline.

Pakistan is often cited as a state that might require such an intervention. Clearly, it is the case that Gates had in mind when he worried about "a nuclear-armed state [that] could collapse into chaos and criminality." But even if Pakistan collapsed, the U.S. government would probably not send in massive forces for fear of facing widespread popular opposition and an armed resistance in the more remote parts of the country. More likely, the U.S. government would resort to air power and Special Forces in order to secure Pakistan's nuclear arsenal. After the invasions of Afghanistan and Iraq, it is clear that U.S. forces are not suited to lengthy occupations, especially when they involve a stabilization mission, governance reform, and economic development.

#### No plausible scenario

Goldstein, professor emeritus of IR – American University, ‘11

(Joshua S, “WORLD PEACE COULD BE CLOSER THAN YOU THINK,” Foreign Policy, Iss. 188, Sept/Oct)

Nor do shifts in the global balance of power doom us to a future of perpetual war. While some political scientists argue that an increasingly multipolar world is an increasingly volatile one - that peace is best assured by the predominance of a single hegemonic power, namely the United States - recent geopolitical history suggests otherwise. Relative U.S. power and worldwide conflict have waned in tandem over the past decade. The exceptions to the trend, Iraq and Afghanistan, have been lopsided wars waged by the hegemon, not challenges by up-and-coming new powers. The best precedent for today's emerging world order may be the 19th-century Concert of Europe, a collaboration of great powers that largely maintained the peace for a century until its breakdown and the bloodbath of World War I.

What about China, the most ballyhooed rising military threat of the current era? Beijing is indeed modernizing its armed forces, racking up double-digit rates of growth in military spending, now about $100 billion a year. That is second only to the United States, but it is a distant second: The Pentagon spends nearly $700 billion. Not only is China a very long way from being able to go toe-to-toe with the United States; it's not clear why it would want to. A military conflict (particularly with its biggest customer and debtor) would impede China's global trading posture and endanger its prosperity. Since Chairman Mao's death, China has been hands down the most peaceful great power of its time. For all the recent concern about a newly assertive Chinese navy in disputed international waters, China's military hasn't fired a single shot in battle in 25 years.

#### Other factors determine conflict

Ikenberry, 9 - Prof. Int’l Affairs @ Princeton (G. John et al, World Politics, Vol. 61, No. 1, p. Muse)

Two major theoretical traditions deal with causes of war in ways that may relate to system structure: neorealism and power transition theory. Applying these in the context of unipolarity yields the general proposition that military conflicts involving the unipole and other major powers (that is, great power wars) are less likely in unipolar systems than in either bipolar or multipolar systems. According to neorealist theory, bipolarity is less war prone than multipolarity because each superpower knows that only the other can threaten it, realizes that it cannot pass the buck to third parties, and recognizes it can balance accretions to the other’s capabilities by internal rather than external means. Bipolarity blocks or at least complicates three common paths to war in neorealism: uncertainty, free riding, and fear of allied defection. The first and second operated during the 1930s and the third operated prior to World War I. By the same logic, unipolarity is even less war prone: none of these causal mechanisms is relevant to a unipole’s interactions with other great powers. Power transition and hegemonic theories predict that major war involving the leading state and a challenger becomes more likely as their relative capabilities approach parity.39 Under unipolarity, parity is beyond the reach of a would-be challenger, so this mechanism does not operate. In any event, many scholars question whether these traditional theories of war remain relevant in a world in which the declining benefits of conquest, nuclear deterrence among most major powers, the spread of democracy, and changing collective norms and ideas reduce the probability of major war among great powers to a historically low level.40 The absence of major conflicts among the great powers may thus be overdetermined or have little to do with unipolarity.

## AT: Economy

#### Decline doesn’t cause war

Morris Miller, Professor of Administration @ the University of Ottawa, ‘2K

(Interdisciplinary Science Review, v 25 n4 2000 p ingenta connect)

The question may be reformulated. Do wars spring from a popular reaction to a sudden economic crisis that exacerbates poverty and growing disparities in wealth and incomes? Perhaps one could argue, as some scholars do, that it is some dramatic event or sequence of such events leading to the exacerbation of poverty that, in turn, leads to this deplorable denouement. This exogenous factor might act as a catalyst for a violent reaction on the part of the people or on the part of the political leadership who would then possibly be tempted to seek a diversion by finding or, if need be, fabricating an enemy and setting in train the process leading to war. According to a study under- taken by Minxin Pei and Ariel Adesnik of the Carnegie Endowment for International Peace, there would not appear to be any merit in this hypothesis. After studying ninety-three episodes of economic crisis in twenty-two countries in Latin America and Asia in the years since the Second World War they concluded that:19 Much of the conventional wisdom about the political impact of economic crises may be wrong ... The severity of economic crisis – as measured in terms of inflation and negative growth – bore no relationship to the collapse of regimes ... (or, in democratic states, rarely) to an outbreak of violence ... In the cases of dictatorships and semi-democracies, the ruling elites responded to crises by increasing repression (thereby using one form of violence to abort another).

## IMPACTS 2

Allied prolif decisions aren’t based on US nuclear posture—if they are, then having more nukes is bad

Reif, director – non-prolif @ Center for Arms Control and Non-Proliferation 1/15/’13

(Kingston, “Nuclear myths (and realities),” Bulletin of the Atomic Scientists)

There is no connection between nuclear disarmament and nonproliferation. The corollary to this argument is that US nuclear weapons prevent proliferation by undergirding (or extending) US nuclear security guarantees to allies, without which these allies may be tempted to acquire their own nuclear weapons. **These claims are flawed for several reasons.**

First, there clearly is a connection between nuclear disarmament and nonproliferation: It is a link that is established in the Nuclear Non-Proliferation Treaty (NPT). The NPT commits the five states that possessed nuclear weapons when the treaty opened for signature in 1968 (the United States, the Soviet Union, China, Great Britain, and France) to give up their nuclear weapons. In addition, it obliges the other state parties (the non-nuclear weapon states) not to acquire nuclear weapons, but it does not prohibit them from pursuing civilian nuclear power programs outside the treaty. It is difficult to fathom that the non-nuclear weapon states would have agreed to extend the NPT indefinitely in 1995 if the nuclear weapon states had insisted that they were not obligated to disarm.

The 2009 final report of the bipartisan Congressional Commission on the Strategic Posture of the United States, which included such conservative stalwarts as Keith Payne and former Defense Secretary James Schlesinger, also pointed to a linkage. While the report was skeptical "that unilateral nuclear reductions by the United States would have any positive impact on countries like North Korea and Iran," it observed that other "nations may not show the nuclear restraint the United States desires or support nonproliferation efforts if the nuclear weapon states take no further agreed steps to decrease their reliance on nuclear arms."

In a recent article analyzing disarmament and nonproliferation, Jeffrey Knopf, program chair of the Monterey Institute's Nonproliferation and Terrorism Studies, concludes "that in some, but not all, cases either a direct or indirect linkage will be a factor in a nonnuclear state's decisionmaking." Consequently, steps by nuclear weapons states to reduce the role and number of nuclear weapons "should help to strengthen the nonproliferation regime even though they will not be a cure-all for every ailment confronting it."

Second, **US nuclear policies and posture also impact the nuclear policies and posture of other nuclear-armed states.** For example, it is widely recognized that China will not ratify the Comprehensive Nuclear Test Ban Treaty until the United States does. Likewise, US efforts to develop and improve long-range missile defenses could undermine US relations with Russia and China. As the Strategic Posture Commission noted, "[D]efenses sufficient to sow doubts in Moscow or Beijing about the viability of their deterrents could lead them to take actions that increase the threat to the United States and its allies and friends."

Third, so long as US allies could fall victim to nuclear attack, the United States should retain nuclear weapons to deter such an attack. However, the claim that US nuclear reductions could prompt allies such as Japan, South Korea, or Turkey to acquire their own nuclear weapons **understates** the **domestic and international political costs** of acquiring nuclear weapons and mischaracterizes that nature of extended deterrence. The continued maintenance by the United States of thousands of nuclear weapons is not necessary to deter the nuclear threats its allies face today. Commitment is illustrated first and foremost by the strength of shared political and diplomatic relations. The United States should work closely with allies to strengthen common interests as a demonstration of its resolve to protect them.

## 2nc no extinction

No impact to warming

Mendelsohn, professor of forestry and environmental studies – Yale, ‘9

(Robert O., “Climate Change and Economic Growth,” <http://www.growthcommission.org/storage/cgdev/documents/gcwp060web.pdf>)

These statements are largely **alarmist and misleading.** Although climate change is a serious problem that deserves attention, society’s immediate behavior has an extremely low probability of leading to catastrophic consequences. The science and economics of climate change is quite clear that emissions over the next few decades will lead to only mild consequences. The severe impacts predicted by alarmists require a century (or two in the case of Stern 2006) of no mitigation. Many of the **predicted impacts assume there will be no or little adaptation.** The net economic impacts from climate change over the next 50 years will be small regardless. Most of the more severe impacts will take more than a century or even a millennium to unfold and many of these “potential” impacts will never occur because people will adapt. It is not at all apparent that immediate and dramatic policies need to be developed to thwart long‐range climate risks. What is needed are long‐run balanced responses.

Experts agree

Hsu 10 (Jeremy, Live Science Staff, July 19, pg. <http://www.livescience.com/culture/can-humans-survive-extinction-doomsday-100719.html>)

His views deviate sharply from those of most experts, who don't view climate change as the end for humans. Even the worst-case scenarios discussed by the Intergovernmental Panel on Climate Change don't foresee human extinction. "The scenarios that the mainstream climate community are advancing are not end-of-humanity, catastrophic scenarios," said Roger Pielke Jr., a climate policy analyst at the University of Colorado at Boulder. Humans have the technological tools to begin tackling climate change, if not quite enough yet to solve the problem, Pielke said. He added that doom-mongering did little to encourage people to take action. "My view of politics is that the long-term, high-risk scenarios are really difficult to use to motivate short-term, incremental action," Pielke explained. "The rhetoric of fear and alarm that some people tend toward is counterproductive." Searching for solutions One technological solution to climate change already exists through carbon capture and storage, according to Wallace Broecker, a geochemist and renowned climate scientist at Columbia University's Lamont-Doherty Earth Observatory in New York City. But Broecker remained skeptical that governments or industry would commit the resources needed to slow the rise of carbon dioxide (CO2) levels, and predicted that more drastic geoengineering might become necessary to stabilize the planet. "The rise in CO2 isn't going to kill many people, and it's not going to kill humanity," Broecker said. "But it's going to change the entire wild ecology of the planet, melt a lot of ice, acidify the ocean, change the availability of water and change crop yields, so we're essentially doing an experiment whose result remains uncertain."

## 2nc co2 not key

CO2 isnt key to warming—most qualified sources, empirical data, and common sense confirm that CO2 can only force atmospheric changes on a small scale—that’s Watts. Their evidence is overhyped and based on unverifiable feedbacks

Miyazaki, PhD mathematics – University of Texas, ‘11

(K. “An Analytic Study of Climate Sensitivity,” UT Mathematical Physics database, <https://www.math.utexas.edu/mp_arc/c/11/11-16.pdf>)

Based on the Stefan-Boltzmann law, the IPCC derives the climate sensitivity of¶ \_T = 1 \_C in the absence of feedbacks. Is this naive picture reasonable? In the present¶ work we examine the radiative forcing in a refined theoretical framework based on an¶ analytic model of radiative transfer. We have found that the naive picture of IPCC is¶ incorrect. The precise climate sensitivity is \_T = 1:4 \_C. The observed temperature¶ anomaly can be reproduced even in the absence of feedbacks. The result is quite sug-¶ gestive. Although the IPCC derives the overall climate sensitivity of \_T = 3 \_C, the¶ value might be too high as pointed out in Ref. [18]. So as to assess the overestimates¶ by IPCC, we examine the climate sensitivity using a pure analytic expression of water¶ vapor feedback, which is however expected to produce the results overestimated. The¶ obtained value \_T = 2:32 \_C is similar to the overall climate sensitivity predicted in Ref.¶ [32]. The water vapor feedback factor 1.65 is however lower than 2 predicted by IPCC.¶ It is therefore seen that the IPCC overestimates the water vapor feedback. In addition,¶ as an experiment, we continue the calculation using the water vapor feedback reduced¶ artiÖcially by half. The result can reproduce the observed temperature anomaly fairly¶ well. The resultant feedback factor 1.25 agrees with the cloud feedback factor in Ref. [33]¶ but is much weaker than the IPCC prediction. This indicates that our model effectively¶ includes the cloud feedback and that the IPCC also overestimates the positive feedbacks¶ other than water vapor. Moreover, the overestimates of positive feedbacks also indicate¶ that the IPCC overestimates the negative forcing by aerosols. Consequently, we can say¶ that the IPCC exaggerates the anthropogenic effects on climate.

Their models overestimate the CO2 forcing effect—confluence of data proves it’s very small

Lindzen, professor – Program in Atmospheres, Oceans, and Climate @ MIT, and Choi, Department of Environmental Science and Engineering – Ewha Womans University, ‘11

(Richard and Yong-Sang, “On the Observational Determination of Climate Sensitivity and Its Implications,” Asia-Pacific J. Atmos. Sci., 47(4), p. 377-390)

Our study also suggests that, in current coupled atmosphere ocean¶ models, the atmosphere and ocean are too weakly coupled¶ since thermal coupling is inversely proportional to sensitivity¶ (Lindzen and Giannitsis, 1998). It has been noted by Newman et¶ al. (2009) that coupling is crucial to the simulation of phenomena¶ like El Niño. Thus, corrections of the sensitivity of current¶ climate models might well improve the behavior of coupled¶ models, and should be encouraged. It should be noted that there¶ have been independent tests that also suggest sensitivities less¶ than predicted by current models. These tests are based on the¶ response to sequences of volcanic eruptions (Lindzen and¶ Giannitsis, 1998), on the vertical structure of observed versus¶ modeled temperature increase (Douglass, 2007; Lindzen, 2007),¶ on ocean heating (Schwartz, 2007; Schwartz, 2008), and on¶ satellite observations (Spencer and Braswell, 2010). Most claims¶ of greater sensitivity are based on the models that we have just¶ shown can be highly misleading on this matter. There have also¶ been attempts to infer sensitivity from paleoclimate data (Hansen¶ et al., 1993), but these are not really tests since the forcing is¶ essentially unknown given major uncertainties in clouds, dust¶ loading and other factors. Finally, we have shown that the¶ attempts to obtain feedbacks from simple regressions of satellite¶ measured outgoing radiation on SST are inappropriate.

One final point needs to be made. Low sensitivity of global¶ mean temperature anomaly to global scale forcing does not¶ imply that major climate change cannot occur. The earth has, of¶ course, experienced major cool periods such as those associated¶ with ice ages and warm periods such as the Eocene (Crowley¶ and North, 1991). As noted, however, in Lindzen (1993), these¶ episodes were primarily associated with changes in the equatorto-¶ pole temperature difference and spatially heterogeneous forcing.¶ Changes in global mean temperature were simply the residue of¶ such changes and not the cause.

## AT: Resource Wars

Resource scarcity leads to cooperation, not war – empirically proven

Dalby 6 (Simon, Dept. Of Geography, Carleton University, "Security and environment linkages revisited" in Globalisation and Environmental Challenges: Reconceptualising Security in the 21st Century, www.ntu.edu.sg/idss/publications/SSIS/SSIS001.pdf)

In parallel with the focus on human security as a necessity in the face of both natural and artificial forms of vulnerability, recent literature has emphasised the opportunities that environmental management presents for political cooperation between states and other political actors, on both largescale infrastructure projects as well as more traditional matters of wildlife and new concerns with biodiversity preservation (Matthew/Halle/Switzer 2002). Simultaneously, the discussion on water wars, and in particular the key finding the shared resources frequently stimulate cooperation rather than conflict, shifted focus from conflict to the possibilities of environmental action as a mode of peacemaking. Both at the international level in terms of environmental diplomacy and institution building, there is considerable evidence of cooperative action on the part of many states (Conca/Dabelko 2002). Case studies from many parts of the world suggest that cooperation and diplomatic arrangements can facilitate peaceful responses to the environmental difficulties in contrast to the pessimism of the 1990’s where the focus was on the potential for conflicts. One recent example of the attempts to resolve difficulties in the case of Lake Victoria suggests a dramatic alternative to the resource war scenarios. The need to curtail over-fishing in the lake and the importance of remediation has encouraged cooperation; scarcities leading to conflict arguments have not been common in the region, and they have not influenced policy prescriptions (Canter/Ndegwa 2002). Many conflicts over the allocations of water use rights continue around the world but most of them are within states and international disputes simply do not have a history of leading to wars.

No resource wars – empirics

Salehyan 7

[Idean, assistant professor of political science - University of North Texas, “The new myth about climate change,” http://www.foreignpolicy.com/story/cms.php?story\_id=3922]

First, aside from a few anecdotes, there is little systematic empirical evidence that resource scarcity and changing environmental conditions lead to conflict. In fact, several studies have shown that an abundance of natural resources is more likely to contribute to conflict. Moreover, even as the planet has warmed, the number of civil wars and insurgencies has decreased dramatically. Data collected by researchers at Uppsala University and the International Peace Research Institute, Oslo shows a steep decline in the number of armed conflicts around the world. Between 1989 and 2002, some 100 armed conflicts came to an end, including the wars in Mozambique, Nicaragua, and Cambodia. If global warming causes conflict, we should not be witnessing this downward trend.

## 2nc warming inevitable

That means 6 degree warming’s inevitable

**AP 9** (Associated Press, Six Degree Temperature Rise by 2100 is Inevitable: UNEP, September 24, <http://www.speedy-fit.co.uk/index2.php?option=com_content&do_pdf=1&id=168>)

Earth's temperature is likely to jump six degrees between now and the end of the century even if every country cuts greenhouse gas emissions as proposed, according to a United Nations update. Scientists looked at emission plans from 192 nations and calculated what would happen to global warming. The projections take into account 80 percent emission cuts from the U.S. and Europe by 2050, which are not sure things. The U.S. figure is based on a bill that passed the House of Representatives but is running into resistance in the Senate, where debate has been delayed by health care reform efforts. Carbon dioxide, mostly from the burning of fossil fuels such as coal and oil, is the main cause of global warming, trapping the sun's energy in the atmosphere. The world's average temperature has already risen 1.4 degrees since the 19th century. Much of projected rise in temperature is because of developing nations, which aren't talking much about cutting their emissions, scientists said at a United Nations press conference Thursday. China alone adds nearly 2 degrees to the projections. "We are headed toward very serious changes in our planet," said Achim Steiner, head of the U.N.'s environment program, which issued the update on Thursday. The review looked at some 400 peer-reviewed papers on climate over the last three years. Even if the developed world cuts its emissions by 80 percent and the developing world cuts theirs in half by 2050, as some experts propose, the world is still facing a 3-degree increase by the end of the century, said Robert Corell, a prominent U.S. climate scientist who helped oversee the update. Corell said the most likely agreement out of the international climate negotiations in Copenhagen in December still translates into a nearly 5-degree increase in world temperature by the end of the century. European leaders and the Obama White House have set a goal to limit warming to just a couple degrees. The U.N.'s environment program unveiled the update on peer-reviewed climate change science to tell diplomats how hot the planet is getting. The last big report from the Nobel Prize-winning Intergovernmental Panel on Climate Change came out more than two years ago and is based on science that is at least three to four years old, Steiner said. Global warming is speeding up, especially in the Arctic, and that means that some top-level science projections from 2007 are already out of date and overly optimistic. Corell, who headed an assessment of warming in the Arctic, said global warming "is accelerating in ways that we are not anticipating." Because Greenland and West Antarctic ice sheets are melting far faster than thought, it looks like the seas will rise twice as fast as projected just three years ago, Corell said. He said seas should rise about a foot every 20 to 25 years.

Low threshold—less than 2 degrees is sufficient to cause their impacts

Harvey, environment reporter – the Guardian, 11/9/’11

(Fiona, <http://www.guardian.co.uk/environment/2011/nov/09/fossil-fuel-infrastructure-climate-change>)

Climate scientists estimate that global warming of 2C above pre-industrial levels marks the limit of safety, beyond which climate change becomes catastrophic and irreversible. Though such estimates are necessarily imprecise, warming of as little as 1.5C could cause dangerous rises in sea levels and a higher risk of extreme weather – the limit of 2C is now inscribed in international accords, including the partial agreement signed at Copenhagen in 2009, by which the biggest developed and developing countries for the first time agreed to curb their greenhouse gas output.

Gas and developing countries offset US emissions reductions

Marshall, climate reporter – New Scientist, 8/20/’12

(Michael, <http://www.newscientist.com/article/dn22196-lowest-us-carbon-emissions-wont-slow-climate-change.html>)

It looks like good news, but it's not. The US has recorded a sharp fall in its greenhouse gas emissions from energy use. Thanks to a rise in the use of natural gas, emissions are at their lowest since 1992. The fall will boost the natural gas industry, but in reality the emissions have simply been exported.

According to the US Energy Information Administration (EIA), energy-related CO2 emissions in the first quarter of 2012 were the lowest in two decades. Emissions are normally high between January and March because people use more heating in the winter, but last winter was mild in the US.

The EIA says that an increase in gas-fired power generation, and a corresponding decline in coal-fired, contributed to the fall in emissions. Burning natural gas produces fewer emissions than burning coal, and natural gas is currently unusually cheap in the US thanks to a glut of shale gas extracted by hydraulic fracturing or "fracking".

If gas companies continue to expand their shale gas operations, the US could generate even more electricity from gas, and its emissions could fall for several years, says Kevin Anderson of the University of Manchester, UK.

However, this will not slow down climate change. US coal consumption has fallen, but production is holding steady and the surplus is being sold to Asia. As a result, the US is effectively exporting the coal-related emissions.

"Gas is less bad than burning the coal, but only if you keep the coal in the ground," Anderson says.

Proponents of natural gas argue that it is a "transition fuel" that we can burn for a few years while we install low-carbon infrastructure such as wind farms and nuclear power stations.

That viewpoint looks increasingly untenable. "If we want even an outside chance of [limiting global warming to] 2 °C, there is no emission space for gas," Anderson says. In order to hit the 2 °C target, global emissions need to peak by 2020 before dropping again, which means making a rapid transition to low-carbon energy.

Feedbacks already triggered, developing countries outweigh, and methane releases cause the impact

Mims, science and technology correspondent – BBC and Grist, 3/26/’12

(Christopher, “Climate scientists: It’s basically too late to stop warming,” <http://grist.org/list/climate-scientists-its-basically-too-late-to-stop-warming/>)

If you like cool weather and not having to club your neighbors as you battle for scarce resources, now’s the time to move to Canada, because the story of the 21st century is almost written, reports Reuters. Global warming is close to being irreversible, and in some cases that ship has already sailed.

Scientists have been saying for a while that we have until between 2015 and 2020 to start radically reducing our carbon emissions, and what do you know: That deadline’s almost past! Crazy how these things sneak up on you while you’re squabbling about whether global warming is a religion. Also, our science got better in the meantime, so now we know that no matter what we do, we can say adios to the planet’s ice caps.

For ice sheets — huge refrigerators that slow down the warming of the planet — the tipping point has probably already been passed, Steffen said. The West Antarctic ice sheet has shrunk over the last decade and the Greenland ice sheet has lost around 200 cubic km (48 cubic miles) a year since the 1990s.

Here’s what happens next: Natural climate feedbacks will take over and, on top of our prodigious human-caused carbon emissions, send us over an irreversible tipping point. By 2100, the planet will be hotter than it’s been since the time of the dinosaurs, and everyone who lives in red states will pretty much get the apocalypse they’ve been hoping for. The subtropics will expand northward, the bottom half of the U.S. will turn into an inhospitable desert, and everyone who lives there will be drinking recycled pee and struggling to salvage something from an economy wrecked by the destruction of agriculture, industry, and electrical power production.

Water shortages, rapidly rising seas, superstorms swamping hundreds of billions of dollars’ worth of infrastructure: It’s all a-coming, and anyone who is aware of the political realities knows that the odds are slim that our government will move in time to do anything to avert the biggest and most avoidable disaster short of all-out nuclear war.

Even if our government did act, we can’t control the emissions of the developing world. China is now the biggest emitter of greenhouse gases on the planet and its inherently unstable autocratic political system demands growth at all costs. That means coal.

Meanwhile, engineers and petroleum geologists are hoping to solve the energy crisis by harvesting and burning the nearly limitless supplies of natural gas frozen in methane hydrates at the bottom of the ocean, a source of atmospheric carbon previously considered so exotic that it didn’t even enter into existing climate models.

Only carbon-negative strategies solve

Lubin, reporter – Business Insider, 10/22/’11

(Gus, <http://articles.businessinsider.com/2011-10-22/news/30309712_1_global-warming-greenhouse-gases-sea-levels>)

We've ignored the climate change gurus for too long, and now it's probably too late to avoid dangerous levels of global warming.

This is the dire conclusion reached by Joeri Rogelj and other scientists in an article published in Nature Climate Chinage (via Science Magazine).

Using the latest data, Rogelj's team modeled 193 proposed emissions plans that were intended to keep global warming below 2°C. They found that most of these plans are already obsolete.

The only plans with any hope of preventing dangerous global warming are those in which global emissions peak during this decade.

The three plans that are "very likely" to work all require heavy use of energy systems that actually remove greenhouse gases from the atmosphere.

## 2nc fertilization ov

Plant adaptation solves all their link turns—plus warming is good for plants

Idso, director of envt science – Peabody Energy, PhD Geography – ASU, Idso, professor – Maricopa County Community College, and Idso, PhD botany – ASU, ‘12

(Craig, Sherwood, and Keith, “Plant Responses to Significant and Rapid Global Warming” *CO2 Science* Vol. 15, No. 24, June)

In an impressive and enlightening review of the subject, Willis and MacDonald (2011) begin by noting that key research efforts have focused on extinction scenarios derived from "a suite of predictive species distribution models (e.g., Guisan and Thuiller, 2005)" - which are most often referred to as bioclimatic envelope models - that "predict current and future range shifts and estimate the distances and rates of movement required for species to track the changes in climate and move into suitable new climate space." And they write that one of the most-cited studies of this type - that of Thomas et al. (2004) - "predicts that, on the basis of mid-range climatic warming scenarios for 2050, up to 37% of plant species globally will be committed to extinction owing to lack of suitable climate space."

In contrast, the two researchers say that "biotic adaptation to climate change has been considered much less frequently." This phenomenon - which is sometimes referred to as evolutionary resilience - they describe as "the ability of populations to persist in their current location and to undergo evolutionary adaptation in response to changing environmental conditions (Sgro et al., 2010)." And they note that this approach to the subject "recognizes that ongoing change is the norm in nature and one of the dynamic processes that generates and maintains biodiversity patterns and processes," citing MacDonald et al. (2008) and Willis et al. (2009).

The aim of Willis and MacDonald's review, therefore, was to examine the effects of significant and rapid warming on earth's plants during several previous intervals of the planet's climatic history that were as warm as, or even warmer than, what climate alarmists typically predict for the next century. These intervals included the Paleocene-Eocene Thermal Maximum, the Eocene climatic optimum, the mid-Pliocene warm interval, the Eemian interglacial, and the Holocene. And it is important to note that this approach, in contrast to the approach typically used by climate alarmists, relies on empirical (as opposed to theoretical) data-based (as opposed to model-based), reconstructions (as opposed to projections) of the past (as opposed to the future).

And what were the primary findings of the two researchers?

As they describe them, in their own words, "persistence and range shifts (migrations) seem to have been the predominant terrestrial biotic response (mainly of plants) to warmer intervals in Earth's history," while "the same responses also appear to have occurred during intervals of rapid climate change." In addition, they make a strong point of noting that "evidence for global extinctions or extinctions resulting from reduction of population sizes on the scale predicted for the next century owing to loss of suitable climate space (Thomas et al., 2004) is not apparent." In fact, they state that sometimes an actual increase in local biodiversity is observed, the case for which we lay out in Section II (Physiological Reasons for Rejecting the CO2-Induced Global Warming Extinction Hypothesis) of our Major Report The Specter of Species Extinction: Will Global Warming Decimate Earth's Biosphere? Read it and rejoice!

BUT—adaptation doesn’t solve CO2 shortages—the best empirical evidence confirms our theory and disproves their answers

Idso, director of envt science – Peabody Energy, PhD Geography – ASU, Idso, professor – Maricopa County Community College, and Idso, PhD botany – ASU, ‘12

(Craig, Sherwood, and Keith, “Plants of Today (and Even More So of Tomorrow): Free at Last!” *CO2 Science* Vol. 15, No. 23, June)

In an illuminating Commentary article in a recent issue of New Phytologist, Tissue and Lewis (2012) write that "atmospheric CO2 over the past 800,000 years has varied generally as a function of glacial periods, with minima (c. 170-200 ppm) during glacial periods and maxima (c. 280-300 ppm) during inter-glacial periods," citing Luthi et al. (2008). More specifically, they indicate that "during the Last Glacial Maximum (LGM, 18,000-20,000 years ago), atmospheric CO2 ranged from 180-200 ppm, which is approximately half the current CO2 (392 ppm), and among the lowest CO2 observed during the evolution of vascular land plants over the past 350 million years [italics and bold added]." Therefore, as the Beatles once musically lamented about temperature - "it's been a long cold lonely winter" - one could surely state the analogous about the atmosphere's long-term CO2 concentration; for as Tissue and Lewis continue ...

"Glacial plants were severely carbon limited over a very long time period, until atmospheric CO2 began rising during the glacial-interglacial transition." In fact, they indicate that "controlled environment studies with modern plants grown in glacial CO2" have shown "significant carbon limitations on plant physiology even when other resources were generally not limiting [italics added]," citing Dippery et al. (1995) and Tissue et al. (1995). So in spite of anything one could have done to enhance their productivity (other than supply them with more CO2), glacial-age plants simply could not produce the bounty that today's plants do. In fact, they were fortunate to merely survive.

On the other hand, earth's vegetation is not in "plant heaven" yet, for as Tissue and Lewis continue, "studies suggest that as CO2 rises from glacial to future levels, the limitation imposed by CO2 on growth and physiology becomes secondary to other environmental factors, such as temperature and drought." And so it does; but with more CO2 in the air, plants have been proven to be better able to deal with these stresses than they were over the prior 350 million years. In the case of rising temperatures, for example, there is abundant experimental evidence that at higher atmospheric CO2 concentrations plants actually prefer higher temperatures (see the many pertinent items we have archived under Growth Response to CO2 with Other Variables: Temperature in our Subject Index). And with respect to the stress of drought, plants are much better equipped to deal with it now-a-days in light of the increased water use efficiency that they typically exhibit in CO2-enriched air (see Growth Response to CO2 with Other Variables: Water Stress in our Subject Index).

CO2 is a negative feedback—prevents catastrophic warming

Singer, PhD physics – Princeton University and professor of environmental science – UVA, consultant – NASA, GAO, DOE, NASA, Carter, PhD paleontology – University of Cambridge, adjunct research professor – Marine Geophysical Laboratory @ James Cook University, and Idso, PhD Geography – ASU, ‘11

(S. Fred, Robert M. and Craig, “Climate Change Reconsidered,” 2011 Interim Report of the Nongovernmental Panel on Climate Change)

All else being equal, their conclusion might be correct. However, ―all else being equal‖ is rarely the case in the real world, and in the case in point CO2 affects Earth‘s climate in several more ways than through its thermal radiative properties. CO2 promotes plant growth both on land and throughout the surface waters of the world‘s oceans, and this vast assemblage of plant life has the ability to affect Earth‘s climate in several ways, almost all of them tending to counteract the heating or cooling effects of CO2‘s thermal radiative forcing as its concentration either rises or falls, thereby helping to maintain Earth‘s temperature within a range that is conducive to the continued existence and indeed flourishing of the planet‘s myriad life forms. For example, Earth‘s plants—ranging from unicellular algae in the sea to grasses, shrubs, and majestic trees on land—emit copious quantities of gases that are converted to particles in the atmosphere, forming aerosols that reflect significant amounts of incoming solar radiation back to space, thereby cooling the planet, or that serve as condensation nuclei for cloud droplets that create more numerous, more extensive, longer-lasting, and brighter clouds that also cool the globe. Therefore, depending on whether the air‘s CO2 content is increasing or decreasing, these phenomena result in changes in global radiative forcing similar in magnitude, but generally opposite in sign, to the direct thermal forcing induced by the increases or decreases in the atmosphere‘s CO2 concentration.

## at: warming kills crops

Biodiversity’s resilient to temperature shifts—newest and most robust evidence—prefer small-scale models over bigger studies—both cooling and productivity loss due to CO2 are bigger threats

\*\*note: also applies to ‘warming kills biodiversity’

Tămaş, PhD Geology and senior researcher – Romanian Academy ‘Emil Racoviţă’ Institute of Speleology, Angelica Feurdean, Senckenberg Research Institute – Frankfurt, Ioan Tanţău, Department of Geology – Babeş-Bolyai University, and Sorina Fărcaş, National Institute of Research and Development for Biological Sciences, ’12

(Tudor, “Elevational variation in regional vegetation responses to late-glacial climate changes in the Carpathians,” *Journal of Biogeography* Vol. 39, Issue 2, p. 258–271, February)

Introduction

The projected changes in temperature and precipitation by 2080 (IPCC, 2007) and increased land-use change are likely to have profound impacts on the diversity and functioning of both terrestrial and marine ecosystems (Thomas et al., 2004; Thuiller et al., 2005; Anderson & Bows, 2008; Jump et al., 2009; Sutherland et al., 2009; La Sorte & Jetz, 2010). Previous studies have shown that species are not equally vulnerable to habitat modification and climate change, and that different areas will not go through the same change in diversity and turnover. In Europe, coarse-scale species distribution models under two extreme assumptions, no- and full-migration scenarios, predict that mountains of middling values of elevation, including the Carpathians, will feature the highest proportion of species loss (up to 29%), and turnover (up to 64%), while the Pannonian lowlands are predicted to gain species up to 15% and to record a 66% increase in turnover as new Mediterranean species, tolerant of a hot and dry climate, invade at the expense of Euro-Siberian elements (Thuiller et al., 2005). However, other species distribution models run at finer scales (Trivedi et al., 2008; Randin et al., 2009), or including representation of plant demography (Hickler et al., 2009), and more accurate dispersal capability (Engler & Guisan, 2009), appear to predict a much smaller habitat and species loss than the coarse-scale models (Thomas et al., 2004; Thuiller et al., 2005; Araújo et al., 2008). All the above model predictions are based only on the current static distribution of species in relation to climate (Thomas et al., 2004; Thuiller et al., 2005; Svenning & Skov, 2007). Past climate reconstructions and simulations have shown that the dimension of precipitation- and temperature-related variables is not static in time, and hence neither are the ecological niche dimensions that influence species distribution and abundance (Jackson et al., 2009; Willis et al., 2010).

A way to improve the assessment of the biotic response in a given area is to perform ecological, palaeoecological and modelling studies at multiple spatial and time scales. Fossil data are able to record multiple generations of a species through time, and can be used as a surrogate for direct measurement of biotic responses to past climate change. Palaeoecological records have been used widely to understand past vegetation dynamics, but these have often addressed the individualistic responses of species to past climate and human impact, while quantitative estimates of changes in community composition have been made less frequently (Williams et al., 2002; Birks, 2007; Birks & Birks, 2008).

In this paper, seven fossil pollen sequences from Romania situated at different elevations were analysed to examine the effects of climate change on community composition and biodiversity between 15,000 and 10,500 cal. yr bp in this biogeographically sensitive region of Europe. Studies of ice-core, marine and continental records have demonstrated that this period (known as the late-glacial period and the transition to the Holocene) was characterized by large-amplitude global climate fluctuations occurring on decadal to millennial time scales (Johnsen et al., 1992; Jouzel et al., 2007). Regional cold periods occurred between c. 18,000 and 14,700 cal. yr bp (GS-2/Oldest Dryas), 14,200 and 13,800 cal. yr bp (GI-1d/Older Dryas), and 12,500 and 11,500 cal. yr bp (GS-1/Younger Dryas), whereas the major warm periods occurred between 14,700 and 14,200 cal. yr bp (GI-1e/Bølling) and 13,800 and 12,500 cal. yr bp (GI-1c-1a/Allerød) (Tămaşet al., 2005; Constantin et al., 2007; Feurdean et al., 2008). This interval offers the possibility of exploring how repeated temperature changes have affected patterns of community composition and diversity, as well as studying the recovery processes following major disruptions of community structure. While the late-glacial and early Holocene climate changes are not perfect analogues for 21st century climate change, the palaeoecological records from this time period still provide useful information on the rates of species response, and on the way species escaped extirpation (Dawson et al., 2011). By examining sites at different elevations, we attempt to identify which elevations were the most sensitive to changes in turnover and species loss. The Carpathians are characterized by heterogeneous landscapes and strong climatic and vegetational zonation, and offer great potential for examining biological responses from the lowlands to the sub-alpine zone. Direct human impact in the form of forest clearance and agriculture was minimal. However, hunter–gatherer communities might have had an impact on the herbivore population and thus indirectly affected the vegetation composition (Gill et al., 2009).

Materials and methods

Selected site

Changes in the late-glacial vegetation communities were inferred from seven published pollen records distributed within the main vegetation belts of the Romanian Carpathians, at elevations from 275 to 1840 m (Fig. 1). These sites are dispersed across several massifs in the Carpathians and some are separated by relatively large distances (c. 50–300 km), so this is a composite elevational transect. Details of geographical settings and present vegetation composition around each site are given in Appendix S1 in the Supporting Information.

The sedimentary basins include peat bogs and lakes, which are small to medium in size (0.05–3 ha). According to models of pollen dispersal, the pollen assemblages of small sites should have a source radius of a few kilometres (1–2 km) around the basins, versus tens of kilometres for medium-sized sites (10–20 km; Gaillard et al., 2008). The relevant pollen source area is also dependent on vegetation patchiness, the size and spatial distribution of the patches, and the pollen productivity and fall speed of the plant taxa involved (Sugita, 1994; Hellman et al., 2009). Given the more open landscapes and patchy vegetation distribution during the late-glacial period, it is likely that the pollen grains were able to disperse over greater distances than today (Gaillard et al., 2008). This is particularly the case for the alpine/subalpine sites, where, due to uphill pollen transport, the pollen assemblages are probably indicative of mixed vegetation coming from a wider elevational and areal range (Pellatt et al., 1998).

Pollen and spore counts were converted into percentages of the terrestrial pollen sum (Fig. 2). The pollen sum is c. 450–600 grains per sample at each site studied, except for a few pollen-poor samples where this sum could not be reached. Pollen nomenclature largely follows Moore et al. (1991) except for the subfamilies within Asteraceae, which are referred to as Liguliforae and Tubuliforae. The pollen and spores are of mixed taxonomic resolution (family, genus, species) and were recorded by three analysts, but it can reasonably be assumed that a comparable taxonomic resolution applies to each analysis. In addition, plant macrofossils were available at two sites (Steregoiu and Preluca Ţiganului). Plant macrofossils are large in size, have a low dispersal capacity, and are usually deposited close to the parent plants and therefore are indicative of local floristic composition.

Radiocarbon dates were recalibrated using Calib Rev 6.0. (Stuvier et al. (2005)http://radiocarbon.pa.qub.ac.uk/calib/) and the INTCAL09 dataset of Reimer et al. (2009) (Appendix S2). The new calibration curve gives smaller standard deviation (SD) errors than the previous calibration datasets, but some of the dates still fall within the plateau at c. 12,600 cal. yr bp and have large probability distribution in the calibrated age (c. 500 years). The chronology is based on linear interpolation between the midpoints of the calibrated distribution at 1 or 2 SD, and in few cases on adjusted age (Appendix S2). The age–depth models at Turbuţa, Avrig, Steregoiu, Luci, Tăul Zănoguţii and Iezerul Călimani sedimentary sequences do not show signs of hiatus in sediment deposition. At Preluca Ţiganului, however, a short hiatus occurs at 6.5 m, indicated by a sharp rise in Ulmus and Picea pollen, and a corresponding drop in Artemisia, Poaceae and Chenopodiaceae (Fig. 2). The chronology shows that the temporal resolution of the samples at Turbuţa, Avrig, Steregoiu, Preluca Ţiganului, Luci and Tăul Zănoguţii sites is between 20 and 100 years, whereas the Iezerul Călimani records changes at multi-centennial intervals (> 100 years per pollen sample).

Numerical analyses

In order to quantitatively determine and compare the amount of change in community composition and diversity between sequences, the following analyses were performed.

The pollen records (Fig. 2) were statistically divided into pollen zones using optimal splitting based on the information content technique (Bennett, 2007). A broken-stick model, as implemented in Psimpoll, was used to assess the significant zones (Bennett, 1996, 2007). Applying the broken-stick model for optimal splitting may not always be the perfect choice, as each splitting starts anew for each successive zone (Bennett, 1996, 2007). Comparison of the results from optimal splitting with other zonation techniques, however, indicates a similar number of significant zones and statistically robust results (Bennett, 1996, 2007).

To determine the compositional difference between pollen zones, a principal components analysis (PCA) was applied. PCA was implemented on datasets from all seven sites combined, and calculated based on the correlation matrix of the square root pollen percentage of selected taxa (Fig. 3). PCA was chosen because the detrended correspondence analysis shows that the longest gradient length is smaller than two SD. PCA was also used to examine: (1) whether climatic events of similar duration and magnitude lead to comparable vegetation assemblages in our sites; and (2) whether there is a distinct sensitivity of the vegetation at sites located at different elevations during the late-glacial and early Holocene. All ordinations were carried out with canoco ver. 4.5 (ter Braak & Šmilauer, 2002).

Rarefaction analysis was used to determine diversity responses to rapid climate changes, that is, whether rapid and repeated climate changes lead to increased or decreased palynological diversity (Fig. 4). Rarefaction analysis was computed using Psimpoll (Bennett, 2007), and the lowest pollen count (Tn) was used to standardize the size of the pollen counts at each site (Birks & Line, 1992). Rarefaction eliminates bias in richness caused by different pollen count sizes (Birks & Line, 1992). However, this does not take the evenness into account. Because of the small samples, population abundance may strongly influence palynological richness (Odgaard, 2006).

Detrended canonical correspondence analysis (DCCA) was used to determine the amount of palynological change at each site (Figs 5 & 6). Because samples in a pollen-stratigraphical sequence are in a known temporal order, this analysis uses age as the external constraint (Birks, 2007; Birks & Birks, 2008), that is, the age–depth file is uploaded as environmental data. Results were scaled in SD units, and changes in palynological composition for the late-glacial and early Holocene were estimated by looking at the range of sample scores on the first, time-constrained DCCA axis, where each value represents a position of a pollen sample relative to the entire gradient scale. Thus, larger variation in the sample scores within a sequence implies greater compositional changes. Turnover, a measure of the total palynological changes over the late-glacial and the Holocene, was calculated as the difference between the highest and lowest values from each sequence. Datasets were prepared in two ways: with all seven sites irrespective of their basal late-glacial age; and using only samples aged between 13,000 and 10,500 cal. yr bp, the interval covered by all seven sequences, in order to ensure that trends in compositional turnover were not affected by using sequences of different duration (Birks, 2007). Before analysis, percentages of all terrestrial pollen and spores were square-root transformed and detrended by segments, with no down-weighting of rare taxa and nonlinear scaling.

Results

Regional patterns in vegetation dynamics

The late-glacial and early Holocene periods were characterized by rapid and recurrent changes in vegetation composition: alternation between high abundances of pollen of trees and of herbaceous taxa (Fig. 2). Zonation of the pollen records revealed between two and six significant zones (Fig. 2). A few, non-significant pollen zones that appear to show similar features in the pollen assemblages at several sites were also considered (Figs 2 & 3a,b). Significant zones are marked with an asterisk, and the first letter of the site name is used as the identifying code for each local assemblage zone at each sequence. The zone boundary marking the transition from the late-glacial to the Holocene is statistically significant at all sites. There is also a statistically significant zone at 6.49 m at Preluca Ţiganului, but this split is due to a sedimentary hiatus at this level and was therefore not included in Figs 2 & 3. Warm intervals are distinguished from cold intervals using these zones (Figs 2 & 3a,b). Results from the broken-stick model indicate that the first two PCA axes are statistically significant and explain 58.9 and 17.2%, respectively, of the total variance. The PCA diagram shows that there is a separation of the pollen samples into distinct clusters (Fig. 3). Samples from the pollen zones A2, PT1, S2, L1 and IC1 (14,700–14,200 cal. yr bp, Bølling) cluster close to those from zones T1, A4, PT3, S3, L3, L4 and TZ2 (13,800–12,900 cal. yr bp, Allerød) in the left part of the chart (Fig. 3a). Both clusters are characterized by an abundant presence of Pinus, Betula, Alnus and Salix (Figs 2 & 3c) and also include Picea abies and small amounts of Ulmus, Quercus, Tilia and Fraxinus. Samples T3, A6, PT5, S5, L6, IC3 and TZ4 (11,500–10,500 cal. yr bp, early Holocene) cluster to the right side of the chart (Fig. 3a) and are characterized by a significant presence of Pinus, Betula, Alnus and Picea abies, but also include pollen of deciduous tree taxa (Figs 2 & 3c). Samples from pollen zones S1 and A1 (> 14,700 cal. yr bp, Oldest Dryas); pollen zones A3, L2, PT2 and TZ1 (14,400–13,800 cal. yr bp, Older Dryas); and pollen zones T2, A5, PT4, S4, L5, IC2 and TZ3 (12,900–11,500 cal. yr bp, Younger Dryas) group together in the lower left part of the diagram (Fig. 3b). These samples are composed of pollen of steppe and tundra elements (Artemisia, Chenopodiaceae, Poaceae, Juniperus and Ephedra) with up to 50% arboreal pollen such as Pinus, Betula, Alnus and Salix (Figs 2 & 3c). The scatter plot of the PCA shows that the early Holocene samples from low and mid-elevations cluster together, whereas samples from the two high-elevation sites (Iezerul Călimani and Tăul Zănoguţii) form a distinctive assemblage in the upper part of the chart (Fig. 3a). All late-glacial samples, however, group fairly close together, regardless of their elevation.

Macrofossil records at the two sites with available data (Steregoiu and Preluca Ţiganului) show the occurrence of Pinus spp., Pinus mugo, Pinus sylvestris, Betula spp. and Salix spp. at the beginning of deglaciation from c. 14,500 cal. yr bp; Pinus cembra, Betula sect. Albae (B. pubescens, B. pendula) from c. 14,400 cal. yr bp; Picea abies, Larix decidua and Prunus padus from c. 14,100–13,900 cal. yr bp; and Populus tremula and Alnus at c. 13,000 yr bp. In contrast, macro-remains of the trees mentioned above were reduced (Pinus, Betula) or disappeared (Picea abies) between 12,900 and 11,700 yr bp (Appendix S3).

Results from the pollen data and the selected macrofossil records indicate that the woody vegetation built up during warm intervals (Bølling and Allerød) and was reduced during the subsequent cold intervals: Older Dryas and especially the Younger Dryas (Figs 2 & 3; Appendix S3). However, with each successive warm interval, new woody taxa with warmer climate requirements were added: Pinus spp., P. mugo, P. sylvestris and P. cembra (pollen and macrofossils), Betula spp. (pollen and macrofossils), Betula sect. Albae (macrofossils), and Salix spp. (pollen) during the Bølling; Picea abies (pollen and macrofossils) and Ulmus (pollen), Populus tremula (macrofossils) during the Allerød; and Ulmus, Quercus, Tilia, Fraxinus, Acer and Corylus avellana (pollen) in the early Holocene (Figs 2 & 3; Appendix S3).

Palynological richness

Many sites show the greatest palynological richness (Fig. 4) at the initiation of the Holocene (after 11,500 cal. yr bp). An interval of greater richness, but with less temporal co-variance between sites, is also recorded between c. 13,800 and 12,500 cal. yr bp. Intervals of low richness were observed largely between c. 12,900 and 11,500 cal. yr bp, between c. 14,200 and 13,800 cal. yr bp, or before c. 14,000 cal. yr bp (Fig. 4). The samples from the early late-glacial (14,700–13,800 cal. yr bp) may have been affected by the abundant occurrence of Pinus (Fig. 2), a taxon with high pollen productivity, which may consequently have reduced the detection of other taxa with lower pollen productivity. Higher-elevation sites record slightly greater richness values than the remaining sites.

Palynological compositional changes

Trends in compositional changes are displayed in two modes: variation in time at each sequence (Fig. 5) and spatial variation along an elevational gradient (Fig. 6).

The DCCA axis 1 scores for all samples (15,500–10,500 cal. yr bp) reveal that the greatest shift in compositional change is recorded around c. 11,500 cal. yr bp for all sites (Fig. 5; Table 1). Distinct compositional changes also occur around c. 14,900–14,700 cal. yr bp, c. 14,000 cal. yr bp, and c. 12,900–12,500 cal. yr bp (Fig. 5), although less evidently at Iezerul Călimani (1650 m). When DCCA analyses were repeated for the interval 13,100–10,500 cal. yr bp, a period covered by all seven sequences, trends in the compositional change were comparable with those for all samples (figure not shown).

Sites from mid-elevations (730–1100 m) show, on average, greater turnover than those at low (< 440 m; Turbuţa and Avrig) and high elevations (> 1650 m; Iezerul Călimani and Tăul Zănoguţii) on DCCA axis 1 for the time interval 15,500–10,500 cal. yr bp (Fig. 6). The range values for beta-diversity are between 1.39 and 1.57 SD (mean 1.49 SD) for lowlands, between 1.66 and 1.82 SD (mean 1.73 SD) for mid-elevation, and between 1.33 and 1.46 SD (mean 1.38 SD) for high-elevation sites (Fig. 6; Table 1).

Discussion

Evidence for distinct ecosystem responses to recurrent cold/warm episodes of the late-glacial and early Holocene

This synthesis shows that the compositional dissimilarity of the vegetation between the low-to-mid- and high-elevation sites became established at the transition from the late-glacial to Holocene (c. 11,500 cal. yr bp), suggesting that the formation of vegetation belts was initiated only at the beginning of the Holocene (Figs 2 & 3).

There is also compositional distinctiveness between samples spanning different warm climatic episodes in our sequences, with the Bølling (14,700–14,200 cal. yr bp) and Allerød (13,800–12,900 cal. yr bp) showing the highest compositional similarity (Fig. 3a). The Bølling and Allerød share a common species pool with pollen of tree species dominated by Pinus and Betula (also evident from macrofossils at the two sites with available records), but differ by a lower proportion of Picea abies and of deciduous tree species (Ulmus, Quercus, Populus) during the Bølling (Figs 2 & 3; Appendix S3). During the Allerød, the vegetation composition resembles that of the early Holocene, due to the dominance of Picea abies forests with large amounts of Pinus and Betula, but lacks the conspicuous occurrence of pollen of deciduous tree taxa common during the early Holocene. Independent climate information extracted from oxygen (δ18O) and carbon isotopes (δ13C) from speleothems from north-western Romania (Figs 4 & 5) reveals a shift towards warmer and wetter conditions and higher soil productivity during the Allerød and Bølling (Tămaşet al., 2005). Warming at the initiation of the Holocene was rapid and strong in amplitude world-wide, with an estimated increase in temperature of 10 °C in c. 60 years at mid-latitude (Johnsen et al., 1992; Steffensen et al., 2008). At a regional scale, stable isotope records (Figs 5 & 6) show a rise in temperature and more pronounced rises for precipitation and soil productivity around 11,700 cal. yr bp (Tămaşet al., 2005; Constantin et al., 2007).

We also identified three periods with a vegetation composition typical for colder stages: Oldest Dryas (> 14,700 cal. yr bp), Older Dryas (14,200–13,800 cal. yr bp) and Younger Dryas (12,900–11,500 cal. yr bp) (Fig. 3b). These ‘cold pollen assemblages’ were dominated by pollen of dry steppe and tundra elements, also containing Pinus, Betula, Alnus and some Picea abies (Figs 2 & 3). Local survival of these species during the Older Dryas and Younger Dryas is demonstrated by the occurrence of their macro-remains at selected sites (Appendix S3). During the Younger Dryas, the temperatures dropped close to those recorded at the height of the last glaciation, between 10 and 20 °C lower for winter temperatures, whereas precipitation was approximately half of present-day values (Isarin et al., 1998; Kutzbach et al., 1998; Jackson & Overpeck, 2000). On the other hand, the summer temperature (growing season) decreased only slightly, leading to an intensification of seasonality and continentality. Climate reconstructions based on stable isotopes (Tămaşet al., 2005) indicate a dramatic decline in precipitation at the initiation of the Younger Dryas (c. 12,500 cal. yr bp), but the changes in temperature were comparatively less marked (Figs 5 & 6).

The nature of recovery processes following major disruptions of community structure

Samples from each warm and each cold interval of the late-glacial show similarities in community composition; nevertheless, each interval possesses a distinct species assemblage. Each abrupt climatic cooling event caused a rapid modification in ecosystem composition, generally manifesting in a reduction of the relative abundance or local extirpation of many tree taxa alongside the development of plant communities with no modern analogue, that is, a mixed steppe and tundra (Fig. 2 & Appendix S3). However, the forests were capable of recovering during each subsequent warm period (Bølling, Allerød, early Holocene). The initial stage in the forest formation of each warm interval resembled the composition of the initial stage of the previous warm interval. During the Bølling, for example, where there was no immediate preceding warm interval and consequently no preceding cumulative events, the woody assemblage was dominated by Pinus (Pinus spp., P. sylvestris, P. mugo) and Betula spp. With the progress and/or increasing length of the warm interval (Fig. 2; Appendix S3), more temperate tree species colonized: P. cembra, Betula sect. Albae (B. pubescens, B. pendula) at the end of the Bølling; Picea abies, Salix, Sambucus, Alnus, Populus tremula, Prunus padus; and then Ulmus, Quercus, Tilia, Fraxinus excelsior, Acer, Corylus avellana in the case of the Allerød and the early Holocene, respectively (Fărcaşet al., 1999; Wohlfarth et al., 2001; Björkman et al., 2002, 2003; Tanţău et al., 2003, 2006; Ampel, 2004; Feurdean & Bennike, 2004; Feurdean, 2005; Tanţău, 2006; Feurdean et al., 2007a,b, 2010; Magyari et al., 2011). Full replacement of the formerly dominant coniferous forest by the temperate deciduous forest at low and mid-elevations took place in the first c. 1200 years of the post-glacial (Fig. 2), thus the period of conditions favourable for reproduction and recruitment needed by the temperate taxa was longer than the length of any mild interval of the late-glacial (c. 500 years for Bølling; c. 1000 years for Allerød). Our results suggest that population abundance/expansion at a given time was not only a consequence of the environmental condition of that period, but also a result of previous cumulative recruitment (Allerød and early Holocene) and extirpation events (end of the last glacial, Older Dryas and Younger Dryas). Bølling, the first warm interval of the deglaciation, is the interval with least diverse woody vegetation, while the Holocene, the last warm interval, is the richest (Fig. 2). This also resulted in a low between-sites vegetation similarity during the early Holocene, 11,500–11,000 cal. yr bp (Feurdean et al., 2010).

The community organization shown by our records during repeated warm/cold periods is consistent with the regeneration niche model, in which population establishment and growth is possible only when the duration of favourable environmental conditions exceeds the mean generation time of the species involved (Jackson et al., 2009). This allows recruitment and establishment (depending on summer temperature and the length of the growing season), survival of the new recruits (depending on minimum winter temperature), and successive recruitment episodes to accumulate (Miller et al., 2008). Indeed, taxa that expanded in representation quickly at the beginning of each warm period (Pinus, Betula, Larix decidua, Alnus, Salix and Juniperus) are those that have traits which enable rapid response to climate change, including fast life-history strategies (rapid establishment probability, smaller sum of minimum growing degree-days, high relative growth rate, lower minimum seed-bearing age) and high stress-tolerance rates (to drought, temperature fluctuations). Tree taxa that need longer to expand (Picea abies, Ulmus, Quercus, Tilia, Fraxinus excelsior, Acer and Corylus avellana) have slower life-history traits (a longer life span, slower recruitment and reproductive maturity, larger sum of minimum growing degree-days), and lower stress tolerance (Bhagwat & Willis, 2008; Jackson et al., 2009; Jump et al., 2009; Lacourse, 2009).

A key caveat, however, is that the production rates of pollen (which partially influence the pollen signal on which our vegetation inference is made) might have been affected by climate. Studies on the relationship between climate conditions and pollen productivity have shown that the pollen production for many tree species is related to the summer temperature of the year previous to plant flowering, but also to weather events (Autio & Hicks, 2004; Hicks, 2006; Broström et al., 2008). Trees may even stop flowering for a couple of years under cold conditions (Hicks, 2006), and this can give a false signal of a reduction in plant abundance. It is also suggested that changes in the atmospheric CO2 concentration might have affected pollen productivity: suppression during cold periods with low CO2 concentration (Jackson & Williams, 2004) and enhancement during warm periods with increased CO2 concentration (Feurdean et al., 2007a). However, one fossil sample generally covers multiple decades and therefore helps distinguish between plant die-back and cessation of pollen production. In addition, plant macrofossils at selected sites provide supplementary information on the local population survival (Appendix S3) and generally confirm the pollen-based interpretation of tree dynamics during the late-glacial.

How much variation in diversity is apparent in sequences from different elevations, in response to recurrent climate fluctuations?

Although there are limitations in using pollen to estimate past plant diversity resulting from varying taxonomic resolution (family, genus, species), differential pollen productivities, dispersal mechanisms of the taxa involved, and evenness (Odgaard, 2006; Weng et al., 2006; Peros & Gajewski, 2008; van der Knaap, 2009), the palynological richness provides a first-order approximation of the diversity within vegetation units: the higher the species number, the higher the palynological richness (Birks & Line, 1992; Flenley, 2005; Weng et al., 2007; Willis et al., 2007; Berglund et al., 2008).

Our results indicate that, except for the early late-glacial period, variations in palynological richness and climate conditions appear to be in good temporal correlation (Fig. 4). Higher richness (probably caused by immigration exceeding extirpation) is recorded mainly during intervals characterized by warmer and wetter conditions, such as the early Holocene and Allerød. Conversely, a slightly lower richness is recorded during cold and dry periods, mainly the Younger Dryas (Fig. 4). Our results show no distinct trends in vegetation diversity/units along elevational gradients during the late-glacial and early Holocene, and do not suggest greater susceptibility to past climate change of biodiversity at high elevations. Mountains are often considered to be highly sensitive to large-amplitude climate variability, due to limited range size, geographical isolation and special adaptation of montane species (Thuiller et al., 2005; La Sorte & Jetz, 2010). In contrast, some studies have invoked a high local persistence of plant species in the mountains due to topographic variability and the local adaptation of species to their environment (Randin et al., 2009; Scherrer & Körner, 2011).

How much variation in turnover is apparent in sequences during the periods of recurrent climate variability?

A complete turnover of species has a gradient length of 4 SD, and at sites with high turnover there are no or few species in common at each end of the temporal sequence (Hill & Gauch, 1980; Birks & Birks, 2008). Results from DCCA reveal that major shifts in compositional changes occurred at the onset of high-magnitude climate changes (c. 12,700 and c. 11,500 cal. yr bp), regardless of whether they were cold or warm, and suggest that these recurrent and rapid reorganizations in the community assemblages were climate-driven (Fig. 5). However, the warm Younger Dryas/Holocene transition features the strongest compositional change with an average of c. 1.2 SD (which translates into c. 70% of the total changes in our sequences), illustrating the strong compositional dissimilarity of the vegetation during the early Holocene versus that of the cold Younger Dryas (Fig. 5). With the exception of the sub-alpine site (Iezerul Călimani), significant compositional changes (between 0.4 and 0.8 SD; c. 25–50%) are also evident at the onset of other climate shifts, such as at c. 14,700 cal. yr bp (mild), c. 14,200 cal. yr bp (cold), and c. 13,800 cal. yr bp (mild) (Fig. 5). In a similar study from Norway, Birks & Birks (2008) reported a change in turnover of c. 1.91 SD at the transition to the Holocene, and noticed that the pollen-based turnover estimates tend to be lower than estimates of turnover based on vegetation present on recently deglaciated glacier forelands following the Little Ice Age, probably due to an incomplete representation of plant species in the fossil pollen records. The pollen-based turnover inferences may also be affected by the differences in pollen productivity of the taxa involved. Taxa with high pollen productivity and/or effective pollen dispersal, such as Pinus, Betula and Alnus, are likely to have contributed more strongly to the compositional changes, while others, with lower pollen productivity and/or capacity of dispersal, such as Picea abies, Larix decidua, Juniperus, Ulmus, Fraxinus, Acer and Tilia, are likely to have contributed less. This is particularly the case in our subalpine site, which shows an abundant occurrence of pollen of Pinus through the whole period, and consequently a low turnover (Figs 2 & 6).

Nevertheless, a major feature of our results is that sites at mid-elevations demonstrated the highest turnover (Fig. 6) and therefore appeared more sensitive to past climate change and encountered more extirpations and immigrations (Fig. 2). Mid-elevations were probably situated at the deciduous/coniferous timberline ecotone, and probably also at the limit between more forested versus more open landscapes during the late-glacial (Fig. 2; Appendix S3). Sites in the low-elevation (< 440 m) and lower alpine (1840 m) zones had the next highest turnover, while the sub-alpine site (1650 m) appeared the least sensitive (Fig. 6). Inhospitable climate conditions throughout most of the late-glacial in the subalpine and lower alpine areas could imply less species displacement and consequently a lower turnover (Figs 2 & 6). On the other hand, modern observations in the Alps indicate that the high local topographic variability of upper mountains allows plants to find suitable habitats for survival within small distances (Randin et al., 2009; Scherrer & Körner, 2011).

Conclusions

Numerous studies have set out to identify at which locations biodiversity is most vulnerable to projected future climate change. Our synthesis of pollen records provides evidence for recurrent rapid ecosystem organization and biotic responses (community composition, diversity and turnover) to late-glacial and early Holocene climate variability.

The biotic response appears to be greater at times with higher-amplitude climatic shifts (c. 11,500 cal. yr bp), providing evidence for a strongly positive relationship between the intensity of climate change and the vegetation response. There is a good consistency in vegetation composition and dynamics during repeated warm and cold episodes, but differences also exist. The community composition at a given time was not only the product of existing environmental conditions, but also the consequence of previous cumulative episodes of extirpation and recolonization. Many local circumpolar woody plants were able to survive when environmental conditions became unfavourable (colder/drier events of the late-glacial), and these populations acted as sources when the climate became more favourable again (warmer/wetter). This is in agreement with modelling results at the local scale, predicting the persistence of suitable habitats and species survival within large-grid cells in which they were predicted to disappear by the coarse-scale models.

In terms of elevation, change in past compositional turnover appears to be strongest between 730 and 1100 m, followed by the low-elevation sites. This finding is in partial contrast with coarse-scale models, which estimate a slightly higher future species turnover in lowlands than at mid-elevations. The magnitude of change in palynological richness does not support greater sensitivity of this measure of biodiversity at high elevations to climate change.

## 1nc soil

CO2 solves soil erosion

Idso, director of envt science – Peabody Energy, PhD Geography – ASU, Idso, professor – Maricopa County Community College, and Idso, PhD botany – ASU, ‘7

(Craig, Sherwood, and Keith, “Soil (Erosion) -- Summary,” <http://www.co2science.org/subject/s/summaries/soilerosion.php>)

Several years ago, in discussing the diverse benefits of CO2-induced increases in plant growth and development, Idso (1989) wrote of "the stabilizing effect of enhanced plant cover on the world's valuable topsoil."  Each and every year, billions of tons of this most precious resource are typically lost to the eroding powers of wind and water.  "However," he continued, "as plants grow ever more vigorously with increasing concentrations of atmospheric CO2, and as they subsequently expand their ranges to cover previously desolate and barren ground, both of these types of erosion should be significantly reduced." Much subsequent research has proven this concept to be correct.  In a study of spatial and temporal patterns of land degradation in northeastern Iceland over the past 7500 years, for example, Olafsdottir and Gudmundsson (2002) found that warmth-induced increases in plant growth and development did essentially the same thing as CO2-induced increases in plant growth.  Local cooling always resulted in "deterioration in vegetation and soil cover," and during every major cold period of their entire record, land degradation was always classified as "severe."  During every major warm period, on the other hand, this condition was reversed, and soils were built up again, as vegetation cover expanded. An entirely different consequence of atmospheric CO2 enrichment has also been demonstrated to play a major role in increasing soil stability.  In a research program carried out at the Jasper Ridge CO2 experiment site in northern California and the Sky Oaks CO2 experiment site in southern California, Rillig et al. (1999) studied belowground ecosystem responses to elevated atmospheric CO2 concentrations over a period of several years, focusing much of their attention on the growth responses of arbuscular mycorrhizal fungi that form symbiotic associations with plant roots.  They also quantified the fungal production of a glycoprotein called glomalin; and in an investigation of the consequences of this phenomenon, they examined its impact on the formation of small soil aggregates and the stability of those aggregates. The scientists' work yielded several significant findings.  The amount of fungal-produced glomalin in the soils of the CO2-enriched treatments in all three of the ecosystems they studied was found to be greater than that observed in the soils of corresponding ambient CO2 treatments.  They also observed increases in the mass of small soil aggregates in the treatments exposed to elevated CO2; and the stability of the small soil aggregates in the CO2-enriched treatments was greater than the stability of similar aggregates in the ambient air treatments.  In addition, in the Sky Oaks study, where six CO2 concentrations ranging from 250 to 750 ppm were imposed as treatments, the authors reported that (1) "the proportion of soil mass in aggregates of 0.25-1 mm showed a linear increase along the CO2 gradient" and (2) "glomalin concentrations followed a pattern similar to that of the small aggregate size class," indicative of ever-increasing soil structure benefits with ever-increasing concentrations of atmospheric carbon dioxide. In a similar study, Rillig et al. (2000) examined several characteristics of arbuscular mycorrhizal fungi associated with the roots of plants growing for at least 20 years along a natural CO2 gradient near a CO2-emmitting spring in New Zealand, finding that elevated CO2 significantly increased percent root colonization by arbuscular mycorrhizal fungi in a linear fashion -- and by nearly 4-fold! -- in going from a concentration of 370 to 670 ppm.  Similarly, fungal hyphal length experienced a linear increase of over 3-fold along the same CO2 gradient; while total soil glomalin experienced a linear increase of approximately 5-fold.  Likewise, Insam et al. (1999) observed that a 270-ppm increase in the air's CO2 concentration increased the presence of humic substances in the soils of nutrient-poor artificial tropical ecosystems by almost 30%. With the significant increases in soil stability that are implied by these several studies, one would expect to see measurable decreases in soil erosion over at least the last half of the 20th century, as the air's CO2 concentration has edged ever upward.  More often than not, however, just the opposite has typically been assumed.  The "remarkable feature" of this long-held belief in continued high, or even increasing, soil erosion, in the words of Trimble and Crosson (2000), "is that it was based mostly on models."  Indeed, they state that "little physical, field-based evidence (other than anecdotal statements) has been offered to verify the high estimates," noting further that "it is questionable whether there has ever been another perceived public problem for which so much time, effort, and money were spent in light of so little scientific evidence." In trying to get to the truth of the matter by looking at hard data from the United States, Trimble and Crosson discovered that "available field evidence suggests declines of soil erosion, some very precipitous, during the past six decades."  Likewise, in studying the Upper Mississippi River Valley, Knox (2001) determined that conversion of the region's natural landscape to primarily agricultural uses boosted surface erosion rates to values three to eight times greater than those characteristic of pre-settlement conditions, while they increased peak discharges from high-frequency floods by 200 to 400%.  Since the late 1930s, however, data indicate that surface runoff has been decreasing; and since the 1940s and early 1950s, the magnitudes of the largest daily flows have been decreasing at the same time that the magnitude of the average daily baseflow has been increasing, just as would be expected for better vegetated and more stable soils, as per the several CO2-induced phenomena discussed above, which facilitate the absorption of rainfall and the reduction of surface runoff to streams and rivers. In conclusion, we note that solid experimental data suggest that the historical increase in the atmosphere's CO2 concentration should have significantly enhanced a number of plant-mediated phenomena that tend to stabilize soil at both the surface of the ground and throughout the plant root zone.  And we note that real-world soil and water survey data indicate that the expected decrease in soil erosion anticipated to result from these effects has indeed been observed.

## at: modeling (global)

Impossible to cut global emissions – no modeling or momentum

**Mead 10** (Walter Russell, senior fellow for U.S. foreign policy at the Council on Foreign Relations, The Death of Global Warming, February 1, <http://blogs.the-american-interest.com/wrm/2010/02/01/the-death-of-global-warming/>)

The global warming movement as we have known it is dead. Its health had been in steady decline during the last year as the once robust hopes for a strong and legally binding treaty to be agreed upon at the Copenhagen Summit faded away. By the time that summit opened, campaigners were reduced to hoping for a ‘politically binding’ agreement to be agreed that would set the stage for the rapid adoption of the legally binding treaty. After the failure of the summit to agree to even that much, the movement went into a rapid decline. The movement died from two causes: bad science and bad politics. After years in which global warming activists had lectured everyone about the overwhelming nature of the scientific evidence, it turned out that the most prestigious agencies in the global warming movement were breaking laws, hiding data, and making inflated, bogus claims resting on, in some cases, no scientific basis at all. This latest story in the London Times is yet another shocker; the IPCC’s claims that the rainforests were going to disappear as a result of global warming are as bogus and fraudulent as its claims that the Himalayan glaciers would melt by 2035. It seems as if a scare story could grab a headline, the IPCC simply didn’t care about whether it was reality-based. With this in mind, ‘climategate’ — the scandal over hacked emails by prominent climate scientists — looks sinister rather than just unsavory. The British government has concluded that University of East Anglia, home of the research institute that provides the global warming with much of its key data, had violated Britain’s Freedom of Information Act when scientists refused to hand over data so that critics could check their calculations and methods. Breaking the law to hide key pieces of data isn’t just ‘science as usual,’ as the global warming movement’s embattled defenders gamely tried to argue. A cover-up like that suggests that you indeed have something to conceal. The urge to make the data better than it was didn’t just come out of nowhere. The global warmists were trapped into the necessity of hyping the threat by their realization that the actual evidence they had — which, let me emphasize, all hype aside, is serious, troubling and establishes in my mind the need for intensive additional research and investigation, as well as some prudential steps that would reduce CO2 emissions by enhancing fuel use efficiency and promoting alternative energy sources — was not sufficient to get the world’s governments to do what they thought needed to be done. Hyping the threat increasingly doesn’t look like an accident: it looks like it was a conscious political strategy. Now it has failed. Not everything that has come out of the IPCC and the East Anglia Climate Unit is false, but enough of their product is sufficiently tainted that these institutions can best serve the cause of fighting climate change by stepping out of the picture. New leadership might help, but everything these two agencies have done will now have to be re-checked by independent and objective sources. The global warming campaigners got into this mess because they had a deeply flawed political strategy. They were never able to develop a pragmatic approach that could reach its goals in the context of the existing international system. The global warming movement proposed a complex set of international agreements involving vast transfers of funds, intrusive regulations in national economies, and substantial changes to the domestic political economies of most countries on the planet. As it happened, the movement never got to the first step — it never got the world’s countries to agree to the necessary set of treaties, transfers and policies that would constitute, at least on paper, a program for achieving its key goals. Even if that first step had been reached, the second and third would almost surely not have been. The United States Congress is unlikely to pass the kind of legislation these agreements would require before the midterm elections, much less ratify a treaty. (It takes 67 senate votes to ratify a treaty and only 60 to overcome a filibuster.) After the midterms, with the Democrats expected to lose seats in both houses, the chance of passage would be even more remote — especially as polls show that global warming ranks at or near the bottom of most voters’ priorities. American public opinion supports ‘doing something’ about global warming, but not very much; support for specific measures and sacrifices will erode rapidly as commentators from Fox News and other conservative outlets endlessly hammer away. Without a commitment from the United States to pay its share of the $100 billion plus per year that poor countries wanted as their price for compliance, and without US participation in other aspects of the proposed global approach, the intricate global deals fall apart. Since the United States was never very likely to accept these agreements and ratify these treaties, and is even less prepared to do so in a recession with the Democrats in retreat, even “success” in Copenhagen would not have brought the global warming movement the kind of victory it sought — although it would have created a very sticky and painful political problem for the United States. But even if somehow, miraculously, the United States and all the other countries involved not only accepted the agreements but ratified them and wrote domestic legislation to incorporate them into law, it is extremely unlikely that all this activity would achieve the desired result. Countries would cheat, either because they chose to do so or because their domestic systems are so weak, so corrupt or so both that they simply wouldn’t be able to comply. Governments in countries like China and India aren’t going to stop pushing for all the economic growth they can get by any means that will work — and even if central governments decided to move on global warming, state and local authorities have agendas of their own. The examples of blatant cheating would inevitably affect compliance in other countries; it would also very likely erode what would in any case be an extremely fragile consensus in rich countries to keep forking over hundreds of billions of dollars to poor countries — many of whom would not be in anything like full compliance with their commitments. For better or worse, the global political system isn’t capable of producing the kind of result the global warming activists want. It’s like asking a jellyfish to climb a flight of stairs; you can poke and prod all you want, you can cajole and you can threaten. But you are asking for something that you just can’t get — and at the end of the day, you won’t get it. The grieving friends and relatives aren’t ready to pull the plug; in a typical, whistling-past-the-graveyard comment, the BBC first acknowledges that even if the current promises are kept, temperatures will rise above the target level of two degrees Celsius — but let’s not despair! The BBC quotes one of its own reporters: “BBC environment reporter Matt McGrath says the accord lacks teeth and does not include any clear targets on cutting emissions. But if most countries at least signal what they intend to do to cut their emissions, it will mark the first time that the UN has a comprehensive written collection of promised actions, he says.”

## at: tech transfers

Tech strategies insufficient

Revkin, environment and energy blogger – NYT, 7/4/’12

(Andrew C., “Can China Follow U.S. Shift from Coal to Gas?” NYT)

Fourth, there is growing interest in so-called “technology strategies” to address climate change.  The gas revolution is a good poster child for the importance of technological innovation.  Most of the key advances that make today’s gas revolution possible—not just fracking but across the production and transmission of gas as well as in the ultra-efficient turbines that are today’s best way to make electricity from gas—trace their origins back to publicly funded R&D in tandem with lots of private sector investment.  Some people have unwisely taken that logic to the extreme and suggested that if the US and other innovating nations just pushed hard on technology that there wouldn’t be much need for emission limits, cap and trade or carbon taxes.

That’s too simplistic.  There’s no question that we need a big push on technology and that all nations, collectively, massively under-invest in energy R&D.  But a technology push with no pull from the market’s a recipe for waste.  I like the carbon tax like the one Australia introduced this week to create an incentive not just to invent new low-carbon technologies but also to deploy them.

One implication for technology R&D policy is that in a world of cheap gas there’s probably a lot of value in looking carbon capture and storage (CCS) technologies for use on gas-fired power plants. To date, most CCS investment has focused on coal on the assumption that coal is cheap and that the technologies needed for CCS on gas are too expensive. That conventional view could change in a world where the full cost of burning coal is high and gas is cheap. Some of the technologies for CCS are generic—they work whether the original fuel is coal or gas—but others (including the costliest parts of CCS systems) must be tailored to the fuel. I’ve always thought that CCS was an inelegant way to lick the carbon problem—because it involves burning fuels and then corralling a huge mass of pollution rather than avoiding the pollution in the first place—but if gas is to be a real “bridge” to a low emission future rather than a nice-looking dead end then we must seriously explore ways to further cut emissions from gas plants. [Here's a link to an article by Jesse Ausubel on one such technology.].

Fifth, all these surprises are a reminder of how much we don’t know about how technology and markets will unfold. Earlier this year the Energy Information Administration published a rather brave study: a retrospective on how well its forecasters have done predicting things like demand for energy, the cost of oil and such. One lesson from that study is that a lot of forecasting is done by looking in the rear view mirror—forecasts typically start with current conditions, and as facts on the ground change radically so do the forecasts. Another lesson from that study is that the record of forecasting energy prices—gas in particular but also oil—is pretty abysmal. Since so much, even CO2, depends on relative energy prices we should be sober about what we can realistically predict for the future.

¶Sixth, I see the gas revolution as just one of a large class of strategies for getting serious about climate change in ways that are politically expedient. In a few countries and jurisdictions—such as Europe, California, and Vermont—people will invest lots of their own money to control emissions in an effort to slow global warming. But most of the world isn’t so keen, yet, to spend handsomely on this global goal. I’ve always thought that the way to make progress on climate change, especially in “reluctant” countries like China and even the U.S., is to start by focusing on places where climate goals overlap with other national priorities—like clearing the air or making energy supplies more reliable. (For another example, focused on the tremendous potential for slowing climate change through action on soot, see the last issue of foreign affairs for an article co-authored with two colleagues here in La Jolla, V. Ramanathan and C. Kennel.) We probably can’t lick global warming with self-interested actions alone, but at least we can point countries in the right direction and build political support for the deeper and more expensive cuts that will be essential.

¶As Victor notes, simply moving from coal to gas is hardly a climate solution on its own, and others challenge the idea that natural gas can serve as a bridge along the road to a post-fossil energy future.

¶And certainly if China’s gas push comes with the same wasteful, leaky practices that American oil and gas companies have only slowly abandoned (and that still abound in Russia and elsewhere), that’s not a reasonable bridge at all.

¶Nothing I, or anyone else writes, will change the reality that the gas age is here for many years to come. But my hope is that progress in avoiding environmental regrets can come through constructive discussion of ways to cut risks and waste and to sustain a long-term energy quest that extends beyond fossil fuels even while they remain abundant and cheap. That’s no easy task.

# 1NR

## impact

#### CPP decline bypasses their defense – the economy is key

Friedberg, Professor of Politics and International Affairs – Princeton, Asia Expert – CFR, ‘10

(Aaron, “Implications of the Financial Crisis for the US-China Rivalry,” *Survival*, Volume 52, Issue 4, August, p. 31 – 54)

Despite its magnitude, Beijing's stimulus programme was insufficient to forestall a sizeable spike in unemployment. The regime acknowledges that upwards of 20 million migrant workers lost their jobs in the first year of the crisis, with many returning to their villages, and 7m recent college graduates are reportedly on the streets in search of work.9 Not surprisingly, tough times have been accompanied by increased social turmoil. Even before the crisis hit, the number of so-called 'mass incidents' (such as riots or strikes) reported each year in China had been rising. Perhaps because it feared that the steep upward trend might be unnerving to foreign investors, Beijing stopped publishing aggregate, national statistics in 2005.10 Nevertheless, there is ample, if fragmentary, evidence that things got worse as the economy slowed. In Beijing, for example, salary cuts, layoffs, factory closures and the failure of business owners to pay back wages resulted in an almost 100% increase in the number of labour disputes brought before the courts.11 Since the early days of the current crisis, the regime has clearly been bracing itself for trouble. Thus, at the start of 2009, an official news-agency story candidly warned Chinese readers that the country was, 'without a doubt … entering a peak period of mass incidents'.12 In anticipation of an expected increase in unrest, the regime for the first time summoned all 3,080 county-level police chiefs to the capital to learn the latest riot-control tactics, and over 200 intermediate and lower-level judges were also called in for special training.13 Beijing's stimulus was insufficient At least for the moment, the Chinese Communist Party (CCP) appears to be weathering the storm. But if in the next several years the economy slumps again or simply fails to return to its previous pace, Beijing's troubles will mount. The regime probably has enough repressive capacity to cope with a good deal more turbulence than it has thus far encountered, but a protracted crisis could eventually pose a challenge to the solidarity of the party's leadership and thus to its continued grip on political power. Sinologist Minxin Pei points out that the greatest danger to CCP rule comes not from below but from above. Rising societal discontent 'might be sufficient to tempt some members of the elite to exploit the situation to their own political advantage' using 'populist appeals to weaken their rivals and, in the process, open[ing] up divisions within the party's seemingly unified upper ranks'.14 If this happens, all bets will be off and a very wide range of outcomes, from a democratic transition to a bloody civil war, will suddenly become plausible. Precisely because it is aware of this danger, the regime has been very careful to keep whatever differences exist over how to deal with the current crisis within bounds and out of view. If there are significant rifts they could become apparent in the run-up to the pending change in leadership scheduled for 2012. Short of causing the regime to unravel, a sustained economic crisis could induce it to abandon its current, cautious policy of avoiding conflict with other countries while patiently accumulating all the elements of 'comprehensive national power'. If they believe that their backs are to the wall, China's leaders might even be tempted to lash out, perhaps provoking a confrontation with a foreign power in the hopes of rallying domestic support and deflecting public attention from their day-to-day troubles. Beijing might also choose to implement a policy of 'military Keynesianism', further accelerating its already ambitious plans for military construction in the hopes of pumping up aggregate demand and resuscitating a sagging domestic economy.15 In sum, despite its impressive initial performance, Beijing is by no means on solid ground. The reverberations from the 2008-09 financial crisis may yet shake the regime to its foundations, and could induce it to behave in unexpected, and perhaps unexpectedly aggressive, ways.

#### Extinction

**Yee**, Associate Professor of Government @ Hong Kong Baptist University, and Storey, Asian-Pacific Center for Security Studies, **‘2**

(Herbert and Ian, China Threat: Perception, Myths, and Reality, p. 5)

The fourth factor contributing to the perception of a china threat is the fear of political and economic collapse in the PRC, resulting in territorial fragmentation, civil war and waves of refugees pouring into neighbouring countries. Naturally, any or all of these scenarios would have a profoundly negative impact on regional stability. Today the Chinese leadership faces a raft of internal problems, including the increasing political demands of its citizens, a growing population, a shortage of natural resources and a deterioration in the natural environment caused by rapid industrialisation and pollution. These problems are putting a strain on the central government’s ability to govern effectively. Political disintegration or a Chinese civil war might result in millions of Chinese refugees seeking asylum in neighbounng countries. Such an unprecedented exodus of refugees from a collapsed PRC would no doubt put a severe strain on the limited resources of China’s neighbours. A fragmented china could also result in another nightmare scenario — nuclear weapons falling into the hands of irresponsible local provincial leaders or warlords.12 From this perspective, a disintegrating China would also pose a threat to its neighbours and the world.

#### High risk of escalation

San **Renxing**, Staff Writer @ The Epoch Times, 8/5/**’5** (<http://english.epochtimes.com/news/5-8-5/30931.html>)

Since the Party’s life is “above all else,” it would not be surprising if the CCP resorts to the use of biological, chemical, and nuclear weapons in its attempt to extend its life. The CCP, which disregards human life, would not hesitate to kill two hundred million Americans, along with seven or eight hundred million Chinese, to achieve its ends. These speeches let the public see the CCP for what it really is. With evil filling its every cell the CCP intends to wage a war against humankind in its desperate attempt to cling to life. That is the main theme of the speeches. This theme is murderous and utterly evil. In China we have seen beggars who coerced people to give them money by threatening to stab themselves with knives or pierce their throats with long nails. But we have never, until now, seen such a gangster who would use biological, chemical, and nuclear weapons to threaten the world, that all will die together with him. This bloody confession has confirmed the CCP’s nature: that of a monstrous murderer who has killed 80 million Chinese people and who now plans to hold one billion people hostage and gamble with their lives.

#### The PRC’s hands are tied

Dan **Steinbock 11**, research director of International Business at the India, China and America Institute and visiting fellow at Shanghai Institutes for International Studies, “Fighting soaring oil prices and inflation”, March 24, http://www.chinadaily.com.cn/cndy/2011-03/24/content\_12218798.htm

Compared with international response Chinese policymakers have moved fast to try to contain the impact of soaring oil prices and inflation. Most importantly, this has meant fiscal adjustments and monetary tightening. In early February, the People's Bank of China (PBOC) lifted its benchmark one-year deposit and lending rates by 25 basis points to 3 percent and 6.06 percent. Leaning too heavily on interest rates tends to draw in more capital and thus contribute to exchange rate pressures, as evidenced in Brazil (interest rate at 11.25 percent) and Indonesia (6.75 percent). Macro-prudential measures (that is, raising reserve or collateral requirements) can discourage credit creation without raising interest rates. The PBOC raised reserve requirements for lenders after mid-February. Last week, it announced that the reserve requirement ratio would be increased by 50 basis points from March 25 - the third time this year. But such measures can lead to distortions in capital markets and are often resisted by influential interest groups. In some countries, overheating has led to a paced increase in the exchange rate to ease inflationary pressures. Such revaluation of currency, however, affects primarily the prices of traded goods. Moreover, a rapid revaluation of the yuan would prompt commodity providers to raise their invoice prices accordingly. Coupled with rapid wage increases, a fast revaluation of the yuan would pose a serious challenge to business. Since all options have trade-offs, Chinese decision-makers have to make their choices in an extremely challenging environment. Adjusting monetary policies will be very difficult in an interdependent global economy, which is coping with US stagnation, Eurozone debt crisis, Japan's triple disaster, and rapidly-changing situations in North Africa and the Middle East. The Chinese government has paid attention to people who are most vulnerable to rising inflation caused by oil price hikes. In February, for instance, gas price in Beijing rose to 7.45 yuan a liter. The government should provide subsidies to low-income families, taxi drivers, and other sections of society that could be hurt by price adjustments. Energy subsidies cannot be withdrawn quickly because that would reduce social cohesion. On the other hand, subsidies are unlikely to offset higher oil prices paid by cabbies, and energy subsidies will not be viable in the long-term. In 2010, China's reliance on imported oil climbed from 33 percent to 55 percent. In the coming decades, this dependency will increase further.

#### Interest rate hikes still trigger collapse

Dr. Eng. Hassan **Zahrawi 11**, general manager of scientific and technical studies at Oil and Gaz News, “High oil prices threaten to derail growth in India, China: IEA”, June 22, <http://www.syria-oil.com/en/?p=1430>

High crude prices may derail growth in China and India, the two nations that have helped the global economy overcome the financial crisis, the International Energy Agency said. “High oil prices are a significant risk to derailing the economic recovery not only in the OECD countries, but also in China and India,” the IEA’s Chief Economist Fatih Birol told Reuters. “China and India are two most important economies which helped us get out of the economic crisis. If they go for tightening of monetary policies, this may lead to a slowdown in their economies which is bad news for all of us.” Prices for Brent have peaked at just above $127 a barrel so far this year although it fell to around $111 on Tuesday as uncertainties about how Greece’s debt crisis could be resolved spurred risk aversion. “But still if you look at the average over the year, oil prices are still significantly higher than average of 2008,” Birol said. “I’m also looking at the next couple of quarters we expect that there will be strong demand growth and sluggish non-OPEC production.” Higher oil prices will also lead to a rise in fuel subsidies despite efforts by China and Iran to reduce it, he said. The subsidy bill for 2010 may be higher than the $312 billion reached in the previous year, he added. The West’s energy watchdog raised its five-year global oil demand forecast by an average of 700,000 bpd compared with the previous medium term report issued in December on growth from non-OECD countries. China alone accounts for more than 40 percent of the increase. GAS BOOST China will still have to import half of its gas needs to feed strong demand growth despite holding onto one of the world’s largest shale gas resources, Birol said. In 2015, China will import about 50 billion cubic metres of liquefied natural gas (LNG), equivalent to the imports for Europe, he said.

## more impacts

#### Savings go back into R&D – boosts competitiveness

Hill 12

(Andrew, “Time to get past the stigma of offshoring” July 9, 2012, Financial Times)

But RBS identified the centre of its problem as its Edinburgh facility, underlining a central point. Where such work is done and by whom – let alone what it’s called (be it offshoring, outsourcing, near-shoring or “best-shoring”) – doesn’t matter. What matters is whether the company is managing the collaboration in a way that brings the greatest benefit. The right answer to that question is frequently much too complex for a campaign soundbite. I once visited an Italian nut factory that shipped unopened pistachio nuts to China to be opened by hand – the ultimate in low-cost, low-value work. When I looked again at the same case six years ago, the Chinese had moved up and out of the pistachio supply chain, while the nut-cracking work had transferred to Californian companies using a new automated system. Similarly, in the search for the optimal combination of location, cost and quality, some UK companies have brought call-centres “home”, having recognised that customers respond better to a British accent on the line. Yet some of these centres are operated by Indian providers, while their UK counterparts offer clients a portfolio of locations, including India. In spite of this variety of options, cost efficiency still tops the list of reasons why western companies choose to send work abroad. It is followed, according to a recent survey by the Offshoring Research Network (ORN), by the need for greater organisational flexibility, growth, access to expert personnel and strategic considerations. Arie Lewin of Duke University’s Fuqua School of Business, says managers still have to demonstrate the business case to their superiors in terms of bald efficiency improvements. Providers themselves are also pushing alternatives that are cheaper than traditional locations like India (for IT) or China (for manufacturing). Increasingly, customers are entertaining bids from the Philippines, the Middle East, eastern Europe and Latin America. But more than 20 years since outsourcing and offshoring took off, it is shocking that many companies are still ignoring the value they could add to their business if they took a more disciplined, more collaborative, less cost-centred and more strategic approach to delegating the work. Half of all outsourcing arrangements, measured by performance, are deemed middling or poor by their own clients, according to the London School of Economics. The LSE’s Leslie Willcocks reckons the best outsourcing deals are those where clients and providers collaborate closely, and actively try to innovate and transform their business. In other words, if you aim solely for a low-cost, arm’s length deal, you get what you pay for. Unless you’re a politician, location matters only because it is easier to keep an eye on contractors who are closer to home. The best insurance against unpleasant surprises from partners based far offshore is simple common sense: draw up detailed contracts, communicate often and well, and maintain tight oversight. The benefits of well-managed outsourcing and offshoring might even win over some critics. Prof Lewin points to one pharmaceutical company that brought all business support decisions – including the nature of the work outsourced and where it should be done – under the control of one senior executive. It pours the cumulative savings from this co-ordinated approach back into research and development. That is the kind of competitive advantage US presidential candidates should be campaigning for, not against.

#### Offshoring increases industry growth -- creates flexibility for high financial returns that increases US export market

Butcher 12

(David, “Offshoring vs. Reshoring: The Business Perspective” July 10th, 2012, Industry Market Trends)

Why Offshoring Still Makes Business Sense

Companies that have moved some of their business processes offshore say they are more flexible and agile, making them better able to adapt to competition in challenging economic environments, according to 2011 findings from the Center for International Business Education (CIBER) and the International Offshoring Research Network project at Duke University’s Fuqua School of Business.

In fact, many business leaders say a corporate-wide strategy to guide offshoring decisions is increasingly critical to achieving global company growth through better service quality and process improvements.

“U.S. companies that have diversified the scale and scope of their global sourcing of business services and processes in recent years say they are reaping operational and financial returns,” Arie Lewin, Fuqua professor of strategy and international business and director of CIBER, said in a statement. “For companies that are engaged in offshoring, we’ve seen a significant jump in the number of respondents who say offshoring activities have led to improved organizational flexibility, from 48 percent in 2009 to 66 percent in 2011.”

Midsize companies, in particular, report aggressive plans to expand and initiate new offshoring initiatives. Approximately 73 percent of midsize companies told CIBER they have plans to expand existing offshore business processes over the next 18-36 months, up from 55 percent in 2011. Conversely, 41 percent of large companies are planning to expand their offshoring of business processes in the same period, down from 52 percent in the previous year.

According to CIBER, cost-savings are no longer the primary driver of offshoring strategies.

“U.S. companies are transferring more of their professional work abroad, especially in the areas of IT infrastructure, application development and maintenance and innovation processes,” Lewin said. “These companies cite a shortage of qualified personnel among the top reasons for utilizing global sourcing of services.”

Making the case for “responsible offshoring and outsourcing” at Harvard Business Review, Ben Heineman, author of High Performance With High Integrity, recently cited strong business reasons for offshoring:

The need to stay cost-competitive with companies headquartered elsewhere, either through reduced finished product/service cost or through supply chain efficiencies;

The need to manufacture, assemble, provide services and do R&D to understand and sell in a local market, and to attract great local talent for jobs that would not normally be offered in the U.S.;

The need to have a significant employment or plant/equipment presence in a local market because host governments demand it;

Because such a presence can also pull a company’s high-end exports from the U.S.;

Because a presence can strengthen that market’s economy and thus increase U.S. exports over time; and

Because any products imported back to the U.S. can benefit consumers and the economy with lower cost (although foreign operations often sell in foreign markets).

#### It creates just as many jobs – recent studies

Chapman 12

(Steve, “What pols don't know about outsourcing It's a key to economic progress” July 19, 2012, Chicago Tribune)

Many Americans fear that every job moved beyond our borders constitutes a grievous loss to our economic welfare. But if something can be made cheaper elsewhere, the relocation will allow us to buy that product at a lower cost, which is entirely desirable. We don't improve our material well-being by depriving ourselves of the chance to get more goods for less money.

We don't actually lose jobs when a company decides to take its manufacturing elsewhere. A recent study of the U.S. published by the Centre for Economic Performance at the London School of Economics and Political Science found, "Offshoring has no effect on native employment in the aggregate."

It destroys some jobs but creates just as many others.

Nor is it exactly optional. If clothing can be made far cheaper in China than in South Carolina, a company with plants in South Carolina can do one of two things. It can move its production to China to take advantage of the lower costs, or it can dig a grave and then climb in.

A company that successfully outsources saves jobs — since a company that goes bust employs no one. If Bain had barred corporations from shifting factories when it made sense to do so, it would have been guilty of economic malfeasance.

Outsourcing, contrary to myth, has not led to the collapse of American manufacturing. In fact, U.S. industrial production has risen by nearly 50 percent in the past 15 years. The reason manufacturing employment has declined is that workers have gotten more productive — meaning it takes less labor to make more goods.

#### Key to consumer spending

Baily, senior fellow – Institute for International Economics, and Farrell, director – McKinsey Global Institute, ‘4

(Martin and Diana, <http://www.databazaar.biz/press/offshoring.pdf>)

Ultimately, in a competitive economy such as that of the United States, consumers benefit as companies pass on savings in the form of lower prices. New research by Catherine Mann, of the Institute for International Economics, in Washington, DC, found that the global sourcing of components has reduced the cost of IT hardware by up to 30 percent since 1995, boosting demand and adding as much as $230 billion to the US GDP in that period.2 Trade in services will have similar effects. A technician in India, for instance, can read a magnetic-resonance-imaging (MRI) scan for a fraction of what it would cost in the United States. Transferring that position to India might cause a US medical technician to be laid off, but lower prices for life-saving technologies mean that more sick people can receive them.

## link

#### Once the tech gets off the ground, the link’s unidirectional

Muro 12

(Mr. Muro is a senior fellow and the policy director at the Metropolitan Policy Program at the Brookings Institution, “Do We Need Subsidies for Solar and Wind Power?” October 8, 2012, WSJ)

Federal subsidies for wind and solar power production are working. In fact, they're working so well that they don't need to continue much longer. But we do need to extend them for a few more years so that they can fulfill their purpose. Let's remember the point of these temporary subsidies: to help emerging clean-energy technologies gain toeholds in challenging markets and advance toward unsubsidized price-competitiveness. The ultimate reward is cheaper, cleaner energy and greater energy diversity, which will help guard against price shocks, keep energy costs down through competition and lessen the damage our energy consumption does to the environment, among other things. The benefits are well worth the cost of temporarily extending these subsidies, which are a trivial portion of the federal budget. Getting Close Wind and solar need the help because the barriers for new technologies in the energy industry are tougher than those in any other industry in this country. Fossil fuels, with the help of their own government subsidies over the years, are thoroughly entrenched, with trillions of dollars' worth of infrastructure in place. At the same time, utilities tend to favor established business models and are required by regulators to provide the lowest-cost power, all of which steers them toward fossil fuels. Against this background, providing temporary support for wind and solar technologies so they can gain the level of scale and efficiency necessary to compete is one of the few ways the nation can reasonably hope to promote energy diversity. Is it working? The evidence is overwhelming that it is: Supported by subsidies but also by rapid technical advances, onshore wind and solar photovoltaic installations are way up, and the price of delivered renewable energy is way down.

### Prices DA-Links

#### Offshore wind will lower prices with increased competition

IRENA, 12

(The International Renewable Energy Agency “RENEWABLE ENERGY TECHNOLOGIES: COST ANALYSIS SERIES,” http://www.irena.org/DocumentDownloads/Publications/RE\_Technologies\_Cost\_Analysis-WIND\_POWER.pdf)

The levelised cost of electricity from wind varies depending on the wind resource and project costs, but at good wind sites can be very competitive. The LCOE of typical new onshore wind farms in 2010 assuming a cost of capital of 10% was between USD 0.06 to USD 0.14/kWh. The higher capital costs offshore are somewhat offset by the higher capacity factors achieved, resulting in the LCOE of an offshore wind farm being between USD 0.13 and USD 0.19/kWh assuming a 10% cost of capital. 4. The potential for renewed cost reductions is good, as supply bottlenecks have been removed and **increased competition among suppliers will put downward pressure on prices** in the next few years. Assuming that capital costs onshore decline by 7% to 10% by 2015, and O&M costs trend towards best practice, the LCOE of onshore wind could decline by 6% to 9%. The short-term cost reduction potential for wind is more uncertain, but the LCOE of offshore wind could decline by between 8% and 10% by 2015. 5. In the medium-to long-term, reductions in capital costs in the order of 10% to 30% could be achievable from learning-by-doing, improvements in the supply chain**, increased manufacturing economies of scale, competition and more investment** in R&D.

#### Cape wind proves the plan leads to massive price suppression

Reuters, 12

(3/31, Study: Cape Wind Will Reduce Regional Electricity Prices by $7.2 Billion

http://www.reuters.com/article/2012/03/30/idUS268940+30-Mar-2012+BW20120330)

Saturday, March 31, 2012

BOSTON, MA, March 30, 2012 -- **Cape Wind will reduce wholesale electric prices for the New England region by $7.2 billion over 25 years, according to a new report published today by** Charles River Associates, **a leading economic consulting firm.** The report shows that ISO New England, the electric grid operator, first dispatches electric generating units with the lowest cost fuel. Since Cape Wind’s fuel – wind – is zero cost, the report states that Cape Wind will displace higher priced and polluting fossil fueled units resulting in average savings of $286 Million per year in New England. “This report makes it clear that Cape Wind will save electric consumers billions of dollars through price suppression while also creating jobs and helping promote cleaner air and greater energy independence,” said Mark Rodgers, Cape Wind Communications Director. The Charles River Associates report is entitled, ‘Update to the Analysis of the Impact of Cape Wind on Lowering New England Energy Prices’, and was commissioned by Cape Wind. The original report was published in February, 2010. The increase in price suppression in the report update was attributed primarily to an increase in power plant retirements and a larger price difference between natural gas and fuel oil. Price suppression in wholesale electric markets occurring as a result of wind power projects has been documented in Europe and in several U.S. power markets. Price suppression from wind power was noted in the 2009 report entitled, ‘New England Governors’ Renewable Energy Blueprint’, which stated “**All of the wind resource potential could provide downward pressure on the marginal prices for energy within the New England electricity market**…this price pressure would ultimately benefit New England consumers.”

#### Just to be safe, here’s a card that quanifies maize’s argument

Sweet, writer for the Wall Street Journal, 2/7/2013

(Cassandra, “Exelon CEO Expects U.S. Natural Gas, Power Prices to Rise,” http://online.wsj.com/article/SB10001424127887324590904578290402819297138.html?mod=googlenews\_wsj#)

Natural-gas and power prices have fallen to historically low levels and remained low, amid relatively weak power demand growth and a sluggish economic recovery. **But the situation is likely to change** in the gas industry, as oil and gas producers refocus their attention on producing more high-priced oil and less low-priced gas.

U.S. natural-gas futures settled Thursday at $3.285 per million British thermal units on the New York Mercantile Exchange.

In the power industry, roughly 19,000 megawatts of aging coal-fired power plants are scheduled to be permanently shut down by 2015 due to new stringent environmental rules, **which should tighten supply and boost electricity prices**, Mr. Crane said.

"There's no volatility in the market right now," he said. "Prices have stayed relatively the same, day in and day out, over the last six to eight months." However, Mr. Crane said he expects **more buyers to enter the wholesale power markets** in 2015, "as the effect of the shutdowns start to hit the market."

[NOTE: Mr. Crane = Christopher M. Crane, CEO of Exelon Corp.]

## offshoring

#### Low prices key to reshore production

Perry 12

(Mark, Prof of Economics @ Univ. of Michigan, "America's Energy Jackpot: Industrial Natural Gas Prices Fall to the Lowest Level in Recent History," 7/31/12 http://mjperry.blogspot.com/2012/07/americas-energy-jackpot-industrial.html)

Building petrochemical plants could suddenly become attractive in the United States. Manufacturers will "reshore" production to take advantage of low natural gas and electricity prices. Energy costs will be lower for a long time, giving a competitive advantage to companies that invest in America, and also helping American consumers who get hit hard when energy prices spike.

#### High prices incentivize outsouring

Lieberman 10

(Ben, senior fellow in environmental policy at the Competitive Enterprise Institute., Manufacturing Unemployment - Stopping Obama's regulatory agenda can't wait until 2012, December 31, 2010, National Review)

It takes energy to run a factory, and rising energy prices tend to reduce manufacturing output. Disproportionately high energy prices in one country encourage the outsourcing of manufacturing to others. The House cap-and-trade bill, known as Waxman-Markey after its original cosponsors, sought to limit emissions of carbon dioxide, the unavoidable byproduct of fossil-fuel combustion. The idea was to drive up the cost of fossil fuels in order to force consumers and businesses to use less of them. Whether manufacturing facilities generated their own energy on site or bought it from a utility, their production costs would have increased. Some would have cut back on output, and others would have shut down entirely. Meanwhile, no other nation would have had comparable restrictions with any real teeth. Even the Kyoto Protocol, the celebrated 1997 global-warming treaty, exempts China and other developing nations from any restrictions, and most European countries and major economic powers have evaded their obligations under it. In fact, carbon dioxide emissions in most of the Kyoto countries were on the rise until the recession. In any event, the recent U.N. climate conference in Cancun suggested that Kyoto is unraveling; though its provisions expire in 2012, negotiators came nowhere close to an agreement to extend them.

Economist David Kreutzer, whose analysis of Waxman-Markey for the Heritage Foundation was widely cited during the congressional debate over cap-and-trade, estimated that that the bill would have raised electricity prices by 90 percent and "destroyed . . . 300,000 manufacturing jobs in 2012, rising to 1,380,000 by 2035." Kreutzer added that "the hardest hit segments would be energy-intensive durable goods, and especially things like motor vehicles and parts, electrical and communications equipment, computers and electronics, machinery, glass products, rubber and plastic products, and medical equipment." He noted that these estimates are for net job losses, meaning that he takes into account new "green jobs" for windmill salesmen and solar-panel installers.

#### Cheap electricity key to reshore manufacturing

Kaiser 12

(John, specializes in high risk speculative Canadian securities with an emphasis on the resource sector. He is one of the few independent analysts with an in-depth knowledge of diamond exploration, “U.S. Will Flourish With Romney or Obama” http://resourcespots.com/u-s-will-flourish-with-romney-or-obama/)

There are good reasons to expect manufacturing to undergo a renaissance. One is the shipping distances between Asia and here are now very long. Oil prices are not going to be cheap. Even if we have our shale oil revolution, oil is fungible: it will trade at the price that the world price is. We have potential instability in the Middle East that could result in further supply shocks…so having your manufacturing close to your target markets is going to be good. The Chinese cost of production is rising. As their middle-class emerges they insist of quality of life rather than quantity of life. No more dumping emissions into the local neighbourhood, workers want health and safety, they want all those things that we take for granted over here. We here want to turn the clock back a little bit and deregulate things so that we can be a little bit more like China, but there’s such a wide gap that that’s not going to happen any time soon. In addition the shale gas revolution has created a glut of natural gas which has resulted in very cheap electricity and a long-term stable supply of electricity. That asset China does not have: it has high energy costs. So there are a number of strategic reasons to reshore manufacturing either to the United States or perhaps to our neighbours to the south. I’m optimistic that that trend will continue.

#### Most important factor

Michielsen 1/15/13

(Thomas, PhD and Prof of Environmental Economics @ Tilburg University, “The distribution of energy-intensive sectors in the USA” January 15, 2013, Journal of Economic Geography 13 (1))

Conclusion

Although energy is often overlooked in industry location analyses because it is a tradable commodity, it plays a significant role in the distribution of manufacturing sectors. My findings suggest that energy is more important than capital and skilled labour for the location of manufacturing industries in the USA. Energy abundance affects industry location indirectly through lower energy prices, but also directly when I condition on prices. The analysis in this article focuses on reserves as an exogenous source of energy abundance, but policy makers can also influence energy availability, for example through investments in nuclear, solar and wind energy. Considering the strong influence of coal and hydro endowments on the location of electricity-intensive industries, such investments can play an important role in attracting value added and employment in energy-intensive sectors.

#### Outweighs all other costs

Krueger 12

(Alan, Chairman @ Council of Economic Advisers, "Reversing the Middle-Class Jobs Deficit," http://www.whitehouse.gov/sites/default/files/reversing\_the\_middle-class\_jobs\_deficit.pdf)

I recently visited one of Parkdale Mills’s textile plants in Sanford, NC. Textiles is literally the world’s oldest manufacturing industry. For decades, American textiles companies have been under intense competition from lower cost labor abroad. This factory was recently reopened. Parkdale Mills operates 30 plants in 7 states in the U.S., and does most of its production here. The company’s CEO, Anderson Warlick, told me that the company has survived by continually raising productivity. The plant floor is a matrix of buzzing computer-operated machines that take raw cotton bolls and convert them into enough cotton fabric to make 1 million tee-shirts a week. Mr. Warlick told me that **the factory spends more money on electricity than labor**. This is an example of how the President’s commitment to develop safe domestic energy sources, including natural gas, dovetails with his manufacturing initiative. **The U.S. has among the lowest electricity costs in the world**, and the remarkable fall in natural gas prices resulting from new extraction techniques has put further downward pressure on electricity prices. When I spoke to Mr. Warlick last week he told me that one of the biggest obstacles he faced was finding enough workers with the right skills. The company often hires workers who were trained at local community colleges. Mr. Warlick also told me something that a lot of CEO’s have been telling us at the White House – **that more and more manufacturing companies are considering shifting their production back to the U.S**. This emerging phenomenon is known as reshoring.

## 2nr

#### Government shifts can dramatically lower the price of electricity from offshore wind

Trabish, 11

(Columnist-Green Tech Media, 3/17, http://www.greentechmedia.com/articles/read/how-much-will-offshore-wind-really-cost)

The goal of Dagher’s consortium is to get the cost of generation “to ten cents per kilowatt-hour, plugged into the grid, by 2020, if we scale up to a thousand megawatts.” The crucial assumption, he stipulated, is that the industry matures enough by 2020 to the point where it achieves the capacity to build 1,000-megawatt projects. At that size, economies of scale will make it possible to build floating wind farms at costs that will meet the ten cents goal. That goal includes the cost of transmitting the electricity generated at sea to the grid, a cost that will be considerable for early and small projects like Block Island and Cape Wind. When projects such as the Google-led Atlantic Wind Development consortium’s Atlantic Wind Connection transmission backbone are in place off the coasts, the costs of getting electricity to the grid will go down. “**Transmission and distribution is a key barrier**,” Dagher said. “I think it’s a critical project.” Separating the building of transmission from the building of the wind farm “takes a huge load off the investors, the developers and the capital.” One other thing is needed, however. “**Everything starts with government policy**,” Dagher said. "The U.S. needs a goal, a target,” he insisted. “**Industry is ready to move but they need a stable policy.”** And the policy, he added, must have incentives that ease the burden of taking on the enormous risks of entirely new and unproven technologies -- like floating wind turbines.

#### Energy incentives lower electricity prices

WNA 12

(World Nuclear Association, “Energy Subsidies and External Costs” October 2012, http://www.world-nuclear.org/info/inf68.html)

A simple definition of subsidy is difficult to find. The IEA points out that there is enormous confusion about what is meant by the term. The narrowest and perhaps most commonly used definition is a direct cash payment by a government to an energy producer or consumer. But this is just one way in which governments can stimulate the production or use of a particular fuel or form of energy. Broader definitions attempt to capture other types of government interventions that affect prices or costs, either directly or indirectly. For example, an OECD study defined a subsidy as any measure that keeps prices for consumers below market levels, or for producers above market levels, or that reduces costs for consumers and producers. In a similar way, the IEA defines energy subsidies as any government action that concerns primarily the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers. What matters in practice is the overall impact of all subsidies and taxes on the absolute level of prices and costs and the competitiveness of each fuel or technology.

**No extinction**

Easterbrook 3(Gregg, senior fellow at the New Republic, “We're All Gonna Die!”, <http://www.wired.com/wired/archive/11.07/doomsday.html?pg=1&topic=&topic_set>=)

If we're talking about doomsday - the end of human civilization - many scenarios simply don't measure up. A single nuclear bomb ignited by terrorists, for example, would be awful beyond words, but life would go on. People and machines might converge in ways that you and I would find ghastly, but from the standpoint of the future, they would probably represent an adaptation. Environmental collapse might make parts of the globe unpleasant, but considering that the biosphere has survived ice ages, it wouldn't be the final curtain. Depression, which has become 10 times more prevalent in Western nations in the postwar era, might grow so widespread that vast numbers of people would refuse to get out of bed, a possibility that Petranek suggested in a doomsday talk at the Technology Entertainment Design conference in 2002. But Marcel Proust, as miserable as he was, wrote *Remembrance of Things Past* while lying in bed.